Railway Age

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EDITORIAL

Railway Age

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The Condition of Cars Grows Worse

The condition of freight cars is steadily growing worse. The total number of cars reported in bad order on July 1 was 354,611, or 15.4 per cent of the total number, as compared with 15.1 per cent on June 15. The number of box cars in bad order was 180,544, and the number of gondolas, 136,144. The number of cars of each of these classes reported in bad order showed an increase. These figures are the worst ever reported in the history of American railroads so far as this paper knows. The wage reduction granted by the Railroad Labor Board went into effect on the date on which these figures were reported. The statistics given in the next report will be interesting and significant. Undoubtedly many railroads postponed repairs on all the cars they could until July 1 in order to get the benefit of the reduced labor costs. It would be a healthy sign if the next report should show a reduction in the number of bad order cars. Just how long it will be before a substantial revival of traffic will occur cannot be safely predicted. It does seem, however, that there soon should be a rapid increase in the demand for box cars to move grain, and gondolas to move coal. Both railroad earnings and public sentiment would be adversely affected if the railways should find themselves unable this fall and winter to handle all the traffic of any kind offered because of too much delay in beginning to improve the condition of cars.

Cross-Tie Purchases and Economy

In securing the greatest economy in the purchase and use of cross-ties, there are numerous factors to be considered just as in the purchase and utilization of any other material on a railroad. A low first price is by no means the determining factor in all cases and at all times, for there are often many other points which must be taken into consideration in arriving at true economy. It would seem that this should be so well known by this time as not to need repetition, yet from time to time instances come to notice which tend to show that it is not as well known as one might think. Just where the fault lies it is difficult to say. It would seem, however, to rest with the purchasing methods pursued by the roads involved. In the past few years a large amount of information relative to the economical selection of ties has been made available through the research work and the studies of the various committees of such organizations as the American Railway Engineering Association, the American Wood Preservers Association and others. Thus it has become possible for maintenance men and others sufficiently interested to determine the classes of ties that would be most economical for any particular road. In general maintenance officers have availed themselves of this information with varying success, though on some roads little of this accumulated knowledge has been put to effective use. In some cases this may be due perhaps to the fact that the finances of the road are in such a shape that the cheapest tie in first cost is the only tie it can afford to buy. There are other roads, though, that are able to look beyond first cost and yet do not always do so. There is a tendency on some such roads where the specification of ties is largely out of the control or guidance of the tie men of the maintenance department to think in terms of branch line ties—cheap ties. And on such roads it will be found that usually there are far too many branch line and siding ties for such tracks and far too few good ties available for main line service. The result is obvious—the uneconomical use of ties. The remedy is equally obvious.

Encourage the Associations

The critical period through which the railroads have passed during the last ten months has put a damper on the activities of several sections of the American Railway Association as well as on some of the independent associations of railway men. In some cases the meetings have been abandoned; in others the work has been greatly curtailed. While this may not be a serious matter in the case of a technical group subjected to direction by the A. R. A., in the case of an independent association, the failure to hold an annual meeting may readily jeopardize its very existence. This is the case at present with one of the smaller associations composed of men of the foreman and general foreman class, who, because of reductions in compensation and the drastic curtailments of their work by the various roads, have suffered a heavy loss in esprit de corps. As a consequence the officers of this association despair of instilling the necessary enthusiasm in the membership to insure a successful program at this year's meeting. The value of these technical associations of railway men is generally recognized. They constitute a most wholesome influence for loyalty and interest in the welfare of the properties. The railways can ill afford to allow the work of these organizations to lapse because of any lack of encouragement or guidance on the part of the managements.

Recognition of Faithful Service

In examining a list of the officers of the railways of Great Britain a striking characteristic is at once apparent to one who ordinarily refers only to such lists of American railroad officers. Directly under the name of every important officer is found the name of his chief clerk, before the subordinate officers are listed. This practice is in strong contrast to the procedure in this country, where in the usual list available to the public not even the names of chief clerks to the highest executive officers are given. The duties of a chief clerk are admittedly of great importance. Upon him depends to a great extent the proper functioning of the property under the supervision of the officer for whom he works. Often the chief clerk's duties take on the characteristics of those of an officer and not infrequently he is called upon to assume the responsibilities of his absent superior. In view of the importance of the position and the recognition accorded it in other countries the question as to whether or not American railroads as a whole are giving adequate recognition or compensation to the chief clerks of our railroads is a natural one. Many of these men naturally take the position that they are not receiving the recognition their service merits and this view is ably expressed in an article written by a chief clerk which appears elsewhere in this issue. At all

events the subject is one of greatest importance and merits the fullest discussion as does any suggestion of injustice in any quarter—and all the more in the case of these men who number so largely among the loyal servants of our railroads.

The May Net of $37,080,654

The Class I railroads of the United States in May, 1921, had a net railway operating income of $37,080,654, as compared with a deficit in May, 1920, of $5,429,769. For the first four months of this year the net was $90,332,121 as against but $26,400,110 in the first five months of 1920. Even though the May, 1921, net represented but 2.41 per cent instead of 6 per cent on the aggregate value of the property used in the service of transportation, the situation has certain favorable aspects, for it indicates that some progress is being made. The difficulty is, however, that too much of this progress has had to be brought about through economies of the most drastic order and represents the severe methods adopted to meet a most difficult problem rather than improvement in the traffic and general situation. The business handled in the first five months of 1921, as is only too well known, has been much less than that carried in the first five months of 1920. The higher freight rates even with the smaller traffic have kept the freight earnings on a par with the 1920 period; the freight earnings in the first five months of 1921 being $1,547,860,564 and in the same period of 1920, $1,518,840,239. The total operating revenues, however, have been less. Now, it is well known that with the decreasing traffic, operation cannot be handled as efficiently. The train load cannot be maintained and in general economies in transportation cannot keep pace with the falling off in business. In the first five months of 1921 total operating expenses were $1,984,693,193, or $106,209,104 less than the same period of last year. Transportation expenses were $33,288,859 less. Expenses for maintenance of way and structures, however, were $51,556,966 less and for maintenance of equipment $37,689,558 less. It is, therefore, evident that the improvement in net has been too largely due to savings in maintenance rather than to a real improvement in the situation. The stock exchange has a somewhat uncanny way of reflecting improvement or the lack of it in the properties behind the securities in which it trades. The absolute lack of interest in railroad securities at present is probably due to various reasons, but, no doubt, one of them is a recognition of the facts of the case that are here noted.

Inadequate Maintenance Affects Net

Analysis of the net earnings for May and the first five months of 1921 taking into consideration some of the major factors which affect them, shows that the emphasis that has been placed on the improvement over the showing in the corresponding month of 1920, is hardly justified. As has been pointed out in a preceding note, the larger part of the increase in net as compared with last year has resulted from reduction in expenses for maintenance of way and structures of $51,556,966 and for maintenance of equipment, $37,689,558. These great reductions would indicate that road bed and equipment were not being kept up. If confirmation were needed, it is to be found in the statistics of the number of employees. The latest figures are for March and in that month less than one-half as many section men were employed as in August, 1920, while the various classes of shop employees show reductions averaging about 25 per cent. It would be interesting to see what the net earnings in May or the five months would have been had the proper amount of work been done on the track and rolling stock. No ready measure of the deficiency in maintenance of way work is available, but the statistics of bad order cars furnish a rough indication of the deferred expenses in the equipment department. From April 1 to May 1, to take one month, the number of heavy bad order cars increased 36,568. The average cost of properly repairing heavy bad order cars is placed at $1,000 to $1,200 each. Assuming that the roads had repaired these 36,000 cars instead of applying bad order tags, taking $1,100 as the average cost of repairs, the expenses for maintenance of equipment in the month of April would have been increased $40,000,000 and the net operating income would have been changed into a deficit. Of course many of these cars may be retired, but even so there will be a considerable charge to operating expenses. The results for April are typical of the first six months of this year. In that period the heavy bad order cars increased 139,193 for which the estimated cost of repairs is $153,000,000. Railway officers realize that the properties have not been kept up to the proper standard in recent months and now that wages have been reduced, the amount of maintenance work is being increased. This will affect the financial results and net earnings may show little increase, despite the reduction in wages. At any rate, it will be extremely difficult to judge whether the roads are on a sound basis financially until maintenance reaches a normal volume.

British Bill Has No Guaranty

What apparently is the most valid criticism of the British railway bill which is now in committee is the fact that supervision practically as thorough as outright government control is contemplated under its provisions without the compensating feature, even for the period of transition, of financial responsibility on the part of the government. The justice of this criticism becomes apparent when recent income figures are examined. In April of this year the roads incurred an operating deficit of $28,472,116, calling for a payment of $46,386,076 by the government to bring receipts up to the guaranteed return on the basis of the year 1913. In May the deficit was $25,475,945 and the government's liability $44,196,665. The situation in which the roads will find themselves next month when government control, and consequently the government guaranty, ceases can scarcely be considered an enviable one. It is doubtful if the most optimistic advocates of the bill could expect the economies hoped for under the consolidations provided by the bill to be great enough to compensate for the cessation of the government guaranty. At any rate the contemplated savings can not be expected to make themselves felt immediately and, until they do, Britain's transportation system will be in jeopardy. Meanwhile the time remaining for the consideration of the bill is becoming shorter and the hope that ample opportunity would be provided for the fullest discussion in committee and on the floor of the House of Commons has all but disappeared.

The Pennsylvania's Come Back

One of the striking features of the May revenues and expenses of the individual Class I roads—published in last week's issue of the *Railway Age*—was the somewhat remarkable improvement in net shown by the Pennsylvania Railroad. The Pennsylvania, considering it as a road of 7,323 miles, rather than as a system of over 10,000 miles, had a gross income in May, 1921, of $40,773,400 as compared with a gross in May, 1920, of $40,408,665 or about the same amount. Its net railway operating income, however, for the month of May was, in 1921, $3,848,609 as compared with a deficit in May, 1920, of $5,727,323; in other words there was a difference or an increase in net of no less than $9,575,933.

For the first five months of 1921, the net railway operating income was $6,370,846; in the first five months of 1920, operations resulted in a deficit of $30,944,101, an increase in 1921 over 1920 of $37,314,949. The Pennsylvania today is carrying only about 75 per cent of the amount of traffic handled in the early part of 1920. It is, however, apparently keeping the situation well in hand. For one thing, its average train load in May, 1921, was 877 as compared with 887 in May, 1920, and an average for the year 1920 of 880. The per cent of locomotives in bad order in May was 22.8 as compared with 31.1 in May, 1920, or with 28.9 in January. Bad order freight cars were 10.3 per cent in May an increase from 3.9 per cent in January; this indicates a trend in the wrong direction and shows that part of the savings in costs of operation have come in maintenance of equipment but attention may be drawn to the fact that the average percentage of bad order cars in May for the country as a whole was approximately 14 per cent. The Pennsylvania is far from being back where it ought to be, but its progress towards recovery is quite decisive.

Give Your Men the Chance

It is a well-known fact that, regardless of the conscientiousness of the efforts made, familiarity with a job or problem frequently acts as a deterrent in attempts made towards improved methods of carrying on work. In other words it is possible to get so close to one's own work as to secure a distorted perspective. Probably no class of men suffer more from this handicap than railway division officers. The work carried on under their direction is at all times urgent, leaving little time for the minor officials or foremen charged with its actual prosecution to visit and learn how their neighbors are meeting similar problems. The handicap is general, existing in all departments—mechanical, maintenance of way, engineering, traffic, etc. Various schemes for broadening the vision of the men engaged in a particular line of work have, at different times, been tried out on the roads of this country with the same success that attended a recent experiment made in England where, as reported in the Railway Gazette for May 6, 1921, the London & North Western invited the personnel of the permanent way department to submit suggestions for improving methods generally. The response was generous and several devices for saving both labor and time were received and thus made available for general adoption. Usually such schemes have been somewhat departmental in character, the efforts of a particular road being confined to a single department and often to a single department of a particular division, thus localizing the benefits and leaving the general situation little improved. However, the better methods which have been developed more or less locally seem to indicate that much good might result from making the experiments more comprehensive and to include all divisional work and all divisions of a road.

The Futility of the Labor Conferences

One of the greatest farces in the history of American railroads was enacted last month. The officers of two hundred railroads met with dummy representatives of the employees and went through the motions of negotiating rules. At the end they were no nearer agreement than at the beginning, for progress was blocked by the instructions which the American Federation of Labor gave to the local labor committees. In the decision on the national agreements the Labor Board said, "Naked presentation as irreducible demands of voluminous forms of contracts regulating working conditions with instructions to sign on the dotted line is not a performance of the obligation to decide disputes in conference if possible." The unions absolutely disregarded this decision. The local committees of employees were governed entirely by instructions from a sub-committee of the National Agreement Committee of the Railway Employees' Department of the American Federation of Labor, which, before the conferences were opened, laid down the procedure that all committees were to follow. It will be recalled that at this time the president of the machinists' union was trying to get into Soviet Russia. Perhaps the sub-committee was not authorized to deviate from the policies laid down before he departed. After trying to arrange conferences with groups of carriers covering certain territories, the local committees on the individual railroads presented to the managements as the proposed new agreement the national agreement, with the exception of those rules dealing with wages. When this was rejected by the railroads, the program outlined by the sub-committee was followed. Almost without exception, the employees refused to accept rules proposed by the railroads and the only portions of the agreement accepted by both parties were those rules in the national agreement which were acceptable to the roads. It is clear that throughout the controversy the roads did not negotiate with their employees, but negotiated through them with the officers of the Railway Employees Department of the American Federation of Labor, who alone were authorized to give a decision on the acceptance of the rules. Will future conferences be a repetition of this nonsensical procedure and will the department heads of all the railroads be obliged to take several weeks from constructive work and spend it in fruitless argument with committees who can take no action without the sanction of union officers? If so, the sixteen points, and in fact the whole machinery established by the Transportation Act for the settlement of labor disputes, will be a mockery.

Good Material and Workmanship Needed

Two things greatly needed at the present time in both railroad shops and roundhouses are an improved quality of material used for repairs and a higher grade of workmanship in applying that material. It costs just as much to apply poor, as good material and when the former fails consistently in service, more reliable, higher priced material must be purchased, the labor cost of one removal and application being a total loss. During the war, it may have been necessary for the railroads to accept poor material in order to obtain output, but this practice should be discontinued. It results in excessive failures, high maintenance costs and delayed equipment. All railroad materials should be purchased with a view to the use for which intended, price not being the only factor considered. It is becoming more and more the practice for progressive railroads to purchase materials on practical and conservative specifications. Every assistance should be afforded the American Railroad Association committees in writing and passing on specifications and good results will follow if these specifications, once accepted, are rigidly adhered to. The way any material is standing up in service can be determined by checking periodically the amounts ordered against that on hand and what has been used. If certain articles are being ordered in unusually large quantities, this will indicate excessive failures and, therefore, defective design or poor material. It always pays in the end to purchase durable material, owing to reduced maintenance and operating costs, and no matter how cheap the first cost, any material requiring frequent repair, patching or renewal, is expensive. Good workmanship also is essential. If output regardless of quality was excusable during the period of the war, that emergency has finally passed and railroad repair shop and roundhouse work should be brought back once

more to a consistently high standard. This can be accomplished only by educating the shop men and developing able, conscientious inspection forces. One railroad official recently said, "It would pay us, I believe, to get better work with less output, than to get high output with low quality workmanship as the latter only adds to the difficulty of maintaining locomotives at enginehouses. Engine failures increase, trains are delayed and operating costs mount."

The Contracting of Maintenance of Way Work

ONE OF THE DEVELOPMENTS of the last few years in the conduct of maintenance of way work which has received a great impetus during the last few weeks is the performance of certain work of this department by contract. The railways have very generally followed the practice of contracting the construction of new lines or facilities for many years. They have, however, almost universally opposed the contracting of maintenance of way work which in any way affected the operation of trains, preferring to do work of this character with their own forces, over which they had undivided control. Conditions in recent years have caused a number of roads to forego their scruples in this direction.

During the acute labor shortage in 1917 and 1918 several roads contracted with outside parties for the performance of certain work, particularly in the vicinity of the large industrial centers, on the basis of actual cost plus a fixed percentage, thereby allowing the contractor to pay whatever price was necessary to secure the required number of men at the particular location without disturbing the railway's wage rate elsewhere on its system.

In these instances this plan was adopted as a means of increasing the wage rates locally. More recently this plan has again been resorted to for the opposite reason. With the standardization of railway wages throughout the country and the fixing of the wages for common labor at figures considerably above those prevailing in most localities, contractors, who are free to take advantage of the lower wages denied the roads, are able to do work for the railways at marked savings in cost.

This has led to the development of at least three general forms of contract. A number of roads are turning certain work over to contractors with a cost-plus-fixed-percentage arrangement. Other roads are contracting on a force account basis, whereby the contractor is paid on the basis of an agreed price per hour for all men employed. With both of these arrangements the roads secure the benefit of the lower wages at which a contractor can secure labor, while the work is commonly done under the supervision of the same railway officers who would handle it with company forces. A third form of contract which has been adopted by a few roads for several years involves the performance of certain fixed tasks at unit prices. While this last kind of contracting is limited necessarily to those classes of work which can be measured readily, it has the advantages of contracting in general to commend it without the possibility of the abuses which may creep into work that cannot be readily measured. It is a significant commentary on the wage decision of the Labor Board that it has produced conditions resulting in so much contracting of work which heretofore has been done by the railways themselves. The facts show that the Labor Board, like other governmental agencies, cannot set aside the law of supply and demand by arbitrary decisions which disregard obvious economic acts. The fact is, labor can be obtained for section work at lower wages than those fixed by the Labor Board; and it is unfortunate that the Labor Board makes it necessary for the railways to obtain it indirectly rather than directly.

Reduce the Accumulation of Bad Order Cars

ON MAY 1, Car Service Division reports showed approximately 310,000 freight cars in bad order, or 13.2 per cent of the cars reported on the lines of the Class I railroads. Of these 310,000 cars, 228,200, or 74 per cent, were in need of heavy repairs. On June 1, 341,300 cars, or 14.8 per cent of the cars on the lines of the Class I railroads, were reported in bad order, of which 74 per cent, or 252,682 cars, were in need of heavy repairs. From the middle of April to the middle of June the net surplus of freight cars declined from a high point of over 500,000 to slightly less than 382,000 at an average rate of about 13,000 cars a week. This marked decline in surplus freight cars has been the result of an increase in traffic which, although definite enough, is still materially behind the average seasonal movement for certain commodities, the most important of which are coal and the merchandise and miscellaneous loadings which make up the great bulk of finished products of the country. Another factor which must be taken into account is the probability that as compared with last year's movement, the demand for grain cars will be materially heavier owing to a general desire to market this year's crop promptly.

There is reason to believe, therefore, that even though the general business activity of the country does not completely revive, there is likely to be an accelerating increase in the demand for cars during the next few weeks, particularly for coal cars, which at its climax may be as great as that reached last fall. If such a demand is to be met satisfactorily, large numbers of bad order cars in need of heavy repairs will have to be placed in service. Unless these cars are to be placed in service without the much needed and long deferred heavy repairs, their number cannot long continue to increase, and vigorous measures will have to be taken by all railroads.

The present equipment conditions are in no small part the result of drastic curtailments of expenditures which the roads were compelled to make during the last winter and spring in a struggle for solvency. For most roads interest payments become due on July 1 and January 1, and it is evident that, whatever the results of the struggle during the past six months, they cannot now be changed. It is now time to look ahead and appraise the situation likely to confront the railroads during the next six months. It is evident that whatever the change in general business conditions may be, there must be a material increase in the traffic movement during the coming six months as compared with that during the first half of the year, and that the longer this increase is delayed, the greater and more insistent will be the demand for cars when the increase finally takes place. If the railroads fail to meet this demand because of an abnormally large accumulation of bad order cars, they will deserve and will receive little public sympathy. The carriers cannot now afford to overtax the public's patience.

The greatest need of the railroads from the standpoint of their own interest is a heavy traffic. Should a car shortage accumulate with several hundred thousand freight cars still in bad order, how can any railroad management justify to its stockholders a policy which did not prepare to take full advantage of a heavy traffic when offered?

It should be stated in passing that equipment conditions are no worse on those roads of comparatively weak financial standing than on those that are comparatively strong. But can any management, irrespective of its financial condition, now justify itself in continuing a policy of curtailing maintenance expenditures likely to jeopardize the service which the public has a right to expect as well as the ability of the road to best serve its own interests? An immediate and extensive campaign of freight car rehabilitation should be inaugurated.

The Farmer and the Railroad Employee

SAMUEL GOMPERS and other labor leaders, including leaders of the railway labor unions, are trying to bring about some kind of organized co-operation between the labor unions and the farmers. The purpose would be joint offensive action by the farmers and the labor unions against the railroads and large industrial and commercial concerns. The labor unions would especially like to get the assistance of the farmers in keeping up railway wages and forcing down railway rates. The result would be to bankrupt the railroads and force government ownership and management, or the Plumb plan of employees' management, on the country; and this is what the railway labor unions want.

Organized co-operation between the farmers and the labor unions regarding railroad matters would, under existing conditions, be extremely anomalous. The reasons why it would be so can be made clear by the presentation of a few facts showing the wide differences between the situations in which the farmers, on the one hand, and railway employees, on the other, now find themselves. The farmer usually is both a capitalist and a working man. The investment he has in his land, buildings, machinery, etc., makes him a capitalist. From this point of view he is just as truly a capitalist as the man who has money invested in a railroad or factory. Most farmers themselves perform a large part of the manual work on their farms. From this point of view they are working men. Both the farmer's return on his investment, and the wages for his work, are derived from the money he receives from the sale of his products.

The farmer is working as many hours a day and as many days a year as he was eight years ago. The latest report of the Bureau of Statistics of the United States Department of Labor shows that in June, 1921, the average wholesale price of farm products was only 13 per cent more than in 1913, before the world war began in Europe. From his investment and his manual labor the farmer is getting only 13 per cent more than before the war. The same statistics show that the average wholesale prices of all commodities were 48 per cent higher in June, 1921, than in 1913, and the average retail prices 44 per cent higher. In other words, while the farmer is receiving 13 per cent more for his labor, he is paying approximately 44 per cent more for what he buys.

Contrast these facts regarding the farmer's situation with the following regarding that of the railway employee: In 1913 the average wage of a railway employee was $761. Since the 12 per cent reduction made by the Railroad Labor Board, effective on July 1, the average wage of a railway employee is approximately $1,695, or 123 per cent more than in 1913. Nor is this all. Railway employees, since before the war, have been granted substantial reductions in their hours of work. About ninety per cent of them are paid on an hourly basis. The average wage per hour of these employees, because of the increases in their wages and the reductions in their hours, is now, even since the recent reduction of wages, at least 140 per cent more than in 1913. In other words, with the retail prices which the railway employee, like the farmer, pays, about 44 per cent more than in 1913, the railway employees who work on an hourly basis are receiving approximately 140 per cent more for each hour they work than in 1913.

There is much agitation among the farmers regarding railway rates. They wonder why, since the prices of their products have declined so much recently, the railway rates cannot, and should not, be substantially reduced. Most of the explanation can be derived from the foregoing figures. In 1913 the total wages paid by the Class I railroads amounted to $1,338,612,385. As a result of numerous advances, including that granted by the Railroad Labor Board in July, 1920, this was raised to an annual basis of $3,900,000,000, or almost 200 per cent. The 12 per cent reduction granted by the Railroad Labor Board, effective on July 1, would make it, if the railroads were handling a normal traffic and employing the same number of men as they did last year, $3,432,000,000, or 156 per cent more than it was in 1913. The railroads are not handling a normal business, however. Because of the decline in business they reduced the number of their employees from 1,993,524 in the first quarter of 1920, to 1,691,471 in the first quarter of 1921, or 15 per cent. This was a smaller number than they had in 1913, when the average number was 1,759,020. They could not long continue to maintain and operate their properties with this greatly reduced number of men, with the reductions in hours of work which have occurred since 1913. Even, however, on the basis of a 15 per cent reduction in employees, the annual pay roll on the basis of present wages would be $3,000,000,000, or 120 per cent more than in 1913.

On the basis of the same number of employees as last year, the total wages of the railways at the present time would be running at the rate of about $3,400,000,000, which is more than the total amount of money that they ever earned from all the service they rendered—freight, passenger, mail and express—in any year before the calendar year 1916. The principal explanation of the fact that the farmer is having to pay higher rates than for years is that the railways are still required by the Railroad Labor Board to pay so much more for labor than in past years.

Just how Mr. Gompers and the leaders of the railway labor unions expect to succeed, in the light of such facts as these, in persuading the farmers that they should co-operate with the labor unions in keeping the railway pay roll up and getting freight and passenger rates reduced is somewhat difficult to surmise. The rates have to be kept up mainly to meet the pay roll. The question of railway wages has been settled for the present. The question of the rules and working conditions of employees established under the national agreements has not, however, been settled at all. The national agreements are still in effect, and the rules and working conditions established by them are continuing to inflate the pay rolls and the operating expenses, thus contributing toward making necessary the rates of which the farmers complain. If the farmers' own leaders would present to them the real reasons why the present rates of the railways are necessary, Mr. Gompers and the leaders of the railway labor unions would meet with insuperable difficulties in enlisting the co-operation of the farmers in an attack upon the owners of the railroads, who, at the present time, are getting only one-half as large returns on their investment as they did eight years ago, while railway employees are receiving wages more than twice as large.

Virginian Railway

SO MUCH HAS BEEN SAID in the columns of the *Railway Age* recently, notably in the issue of May 27, pages 1203 to 1208, regarding the operation of this road that the review of the annual report of the company can be made brief.

The year 1920 was a good year for the Virginian Railway. It was marked by large net earnings and by the carrying out of several progressive developments. In 1920 the Virginian Railway had a net railway operating income, as reported in the monthly statement for December to the Interstate Commerce Commission, of $4,944,243. This compared with the net railway operating income for 1919 of $2,541,603. So far this year the Virginian has kept ahead of its 1920 figures. The net railway operating income for the first four months of this year has been $1,288,717, compared with $1,020,025 in 1920. In the article which appeared in the *Railway Age* of May 27 considerable stress was placed on the importance of export trade and coal in the Virginian's operations. The

figures which are given above show how this new business has been reflected in net earnings.

Referring now to the corporate income account, which takes into consideration the standard return for January and February and the guaranty for the six months of the guaranty period, it will be noted that the net income for the year ended December 31, 1920, which figure is subject to settlement with the United States government, was $3,287,462, as compared with a corporate income to 1919 of $1,845,632.

Inasmuch as so much information concerning the operations of the Virginian was given in the article previously referred to, it is hardly necessary to say much concerning them here. However, in 1920 the Virginian carried 7,784,517 tons of revenue freight, its traffic aggregating 2,848,422,083 ton-miles, as compared with 5,983,824 tons and 2,114,771,380 ton-miles in 1919. Of the total tonnage carried in 1920, 7,145,731 tons were bituminous coal. In carrying this tonnage the railroad secured an average number of freight cars per train of 65.22, an average load per car of 53.32 tons and an average revenue train load of 1,718 tons.

The progress that was made by the Virginian in 1920 was of a character which should permit the road to make a considerable increase in its capacity as a bituminous coal road. During the year the road acquired the first part of an order of 1,000 of the new 120-ton coal cars. With this acquisition the number of freight cars was increased from 8,875 at the end of 1919 to 9,425 at the end of 1920 and the total capacity of 451,148 tons to 512,330 tons. In view of the fact that this increase was secured with only a portion of the total order, it is apparent that the 1921 report will show a similar increase.

Considerable attention has been given at various times in the columns of the *Railway Age* to the double-tracking of the 2.07 per cent grade between Elmore, W. Va., and Clark's Gap. This improvement will add considerably to the capacity of the railroad and will solve one of its most serious operating problems. To assist in carrying out the work, the road has secured a loan of $2,000,000 from the revolving fund.

The railroad has also been making some extensive as well as intensive development. The extensive development includes the lease of the Virginia & Wyoming Railway, which had in process of construction, or about to be constructed, about 14½ miles of line extending from a point on the Virginian near Maben to a point on Laurel Fork of the Guyandot. The new line is now in process of construction and it is hoped to have it completed during the present year. It will open up an entirely new territory west of the territory at present served by the Virginian's lines and should have an appreciable bearing on the future business of the company.

The following gives the figures for operation in 1920 as compared with 1919:

	1920	1919
Mileage operated:		
Freight revenue	$15,737,818	$10,268,428
Passenger revenue	909,686	742,508
Total operating revenue	18,158,853	12,075,305
Maintenance of way expenses	2,229,597	1,838,773
Maintenance of equipment	3,710,211	2,662,387
Traffic expenses	100,168	56,343
Transportation expenses	6,513,536	4,421,566
General expenses	379,634	300,748
Total operating expenses	12,908,982	9,274,535
Net from railway operation	5,249,871	2,800,770
Income from operation	4,133,169	2,530,937

The corporate income account is as follows:

Tentative net railway operating income for the ten months ended December 31, 1920	$4,510,729	.....
Compensation due from U. S. Government (January and February, 1920; full year 1919)	513,365	$3,247,603
Tentative railway operating income for the year subject to settlement with the United States Government	5,024,095	.....
Total non-operating income	$284,209	.....
Gross income	$5,308,304	$3,548,577
Total deductions from gross income	2,020,842	1,767,012
Net income (tentative for year 1920, subject to settlement with U. S. Government)	$3,287,462	$1,845,632

Union Pacific

IN ANALYZING the operations of the Union Pacific System, it must be borne in mind that in addition to being made up of a group of well operated properties, the system is characterized by being somewhat of an unusual investment organization. The Union Pacific System properly speaking consists of the Union Pacific Railroad, 3,614 miles; the Oregon Short Line, 2,359 miles, and the Oregon-Washington Railroad & Navigation Company, 2,224 miles. The Los Angeles & Salt Lake, the St. Joseph & Grand Island, etc., are controlled by the Union Pacific System, but they may better be spoken of as affiliated rather than as constituent companies. In this review, the facts stated and the figures given will relate, unless otherwise stated, to the system as made up of the three constituent companies and excluding all offsetting accounts.

The best way to show that the properties are well operated is to indicate that the constituent companies of the Union Pacific System were very much in the way of exceptions in that they were among the very few carriers who earned during the period of federal control more than their standard return. Operating ratios are not supposed to be given too much importance; however, the operating ratio of the system in 1920, despite all the handicaps for which that year is justly noted, was but 75.07 per cent.

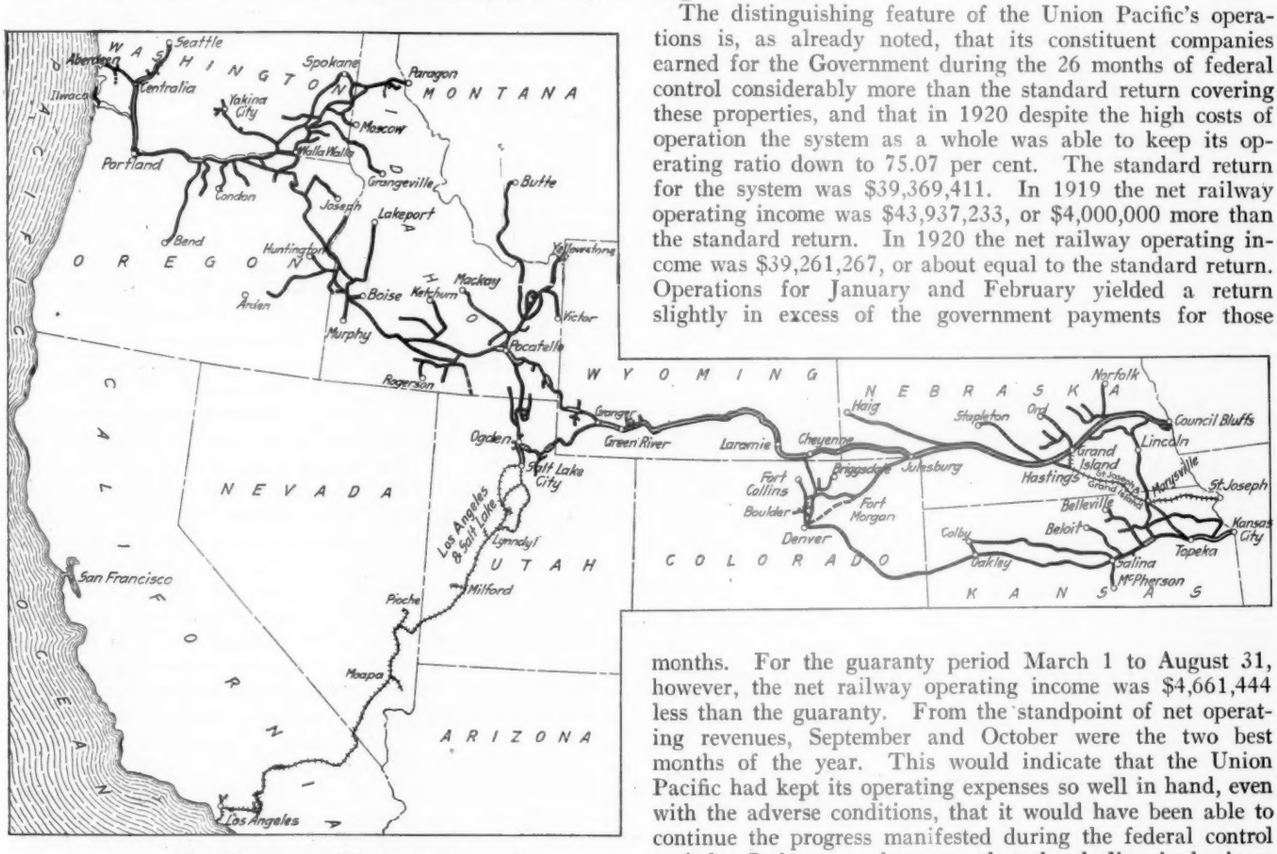
Similarly, the best way to indicate the importance of the system as an investment organization is to point out that on December 31, 1920, the Union Pacific owned $70,932,147 par value of stocks and $115,282,300 face value of equipment trusts, short term notes and mortgage bonds of companies not affiliated with the Union Pacific System, and, in addition $15,232,300 of Liberty and Victory loan bonds. The ownership of securities of companies affiliated with the system, such as the Los Angeles & Salt Lake, the St. Joseph & Grand Island, the Pacific Fruit Express (in which the Union Pacific has a half interest), etc., but excluding the Oregon Short Line and the Oregon-Washington, totaled on December 31, 1920, $38,846,503 par value of stocks and $41,449,198 face value of bonds and notes. On this total enormous investment, the company received in dividends in 1920 the sum of $4,172,396 and in interest $7,331,211, or including some $800,000 interest on loans and open accounts, etc., a total of $12,298,957. The size of this figure is indicated by comparing it with the total fixed charges in 1920, which were $15,419,279.

The Union Pacific pays dividends of 10 per cent. This rate was established in October, 1906, reduced to 8 per cent in July, 1914, shortly after the distribution of the Baltimore & Ohio stock and restored to 10 per cent in December, 1916. When the rate was established it was announced that 6 per cent was paid out of the return from railroad operations and 4 per cent from the return on investments. The story of the Union Pacific's investments is interesting; it is one of the brilliant spots in the history of American railroad finance and inasmuch as it has been treated in complete detail by numerous writers of the highest standing it is not necessary to enlarge upon it here except insofar as affects present conditions.

The Union Pacific, as above noted, owns $70,000,000 in stocks and $115,000,000 of equipment trusts, short term notes and mortgage bonds of companies not affiliated with the system. It is interesting to see what may have been the effect on this investment of the present decline of stock and bond prices, the lowering of dividend rates or the passing of dividends. The $70,000,000 of stocks of unaffiliated companies consists principally of $22,500,000 Illinois Central stock; $21,000,000 of New York Central; $10,343,100 of Chicago & Alton preferred; $4,420,600 of Chicago & North Western common; $3,594,035 Baltimore & Ohio common and $1,805,992 preferred; $1,845,000 of Chicago, Milwaukee & St. Paul, preferred, etc. The holdings in some of these

companies have presumably been of value to the Union Pacific because of traffic relationships; the Union Pacific's operating strength lies largely in its favorable connections.

However, it happens that some of these stocks were bought at very high figures. The Illinois Central stock, which is now selling at 91½, cost about $163 a share; the North Western common, now selling at 65, was secured at 168; the New York Central, now selling at about 70, was secured at from par to 136; the Alton, preferred, now quoted at 8 bid and 12 asked, cost about 161; B. & O. preferred, now selling at 51, cost about 93; the B. & O. common, now selling at 39, cost about 120. Because of the present low state of the bond market, depreciation from the $115,282,300 face value of the bonds, notes, etc., has also taken place, but, of course, because of the different factors involved to a considerably lesser extent. A drop in the value of securities owned such as has been here indicated would have proved a staggering blow to almost any company—that is, except one of the financial strength of the Union Pacific. The company some years ago was able to compensate for it by the establishment of a reserve for depreciation of securities. This is now carried on the balance sheet at $50,000,000; in view of the conditions the matter does not seem to present particular difficulty for the company's future.



The Union Pacific System

Another factor that is worthy of consideration is the matter of future return on this investment in stocks and bonds of unaffiliated companies. The bonds which are owned are high grade; the railway situation would have to get very bad, indeed, to jeopardize the return on the equipment trusts, notes and bonds owned. Insofar as concerns the stocks, little reduction in dividends in stocks of companies not affiliated with the system other than that which has already taken place may be expected. The stocks that are at present paying dividends include the B. & O. preferred; the North Western common, the Illinois Central and the New York Central. It is indeed unlikely that any of these four companies will be unable to maintain the present dividends on the respective stocks mentioned. In concluding this portion of our review, the point can be made that the Union Pacific has suffered severely from the decline in railroad securities, particularly in the case of stocks which were purchased at high prices, but on which dividend payments have since ceased. The depreciation in values it has been able to compensate for out of its surplus, but it has nevertheless lost considerable additional income. There is, however, the compensating factor that its ownership of stocks in these other companies has helped its traffic relations with these roads and has presumably assisted it in getting business which it otherwise might not have had.

The distinguishing feature of the Union Pacific's operations is, as already noted, that its constituent companies earned for the Government during the 26 months of federal control considerably more than the standard return covering these properties, and that in 1920 despite the high costs of operation the system as a whole was able to keep its operating ratio down to 75.07 per cent. The standard return for the system was $39,369,411. In 1919 the net railway operating income was $43,937,233, or $4,000,000 more than the standard return. In 1920 the net railway operating income was $39,261,267, or about equal to the standard return. Operations for January and February yielded a return slightly in excess of the government payments for those months. For the guaranty period March 1 to August 31, however, the net railway operating income was $4,661,444 less than the guaranty. From the standpoint of net operating revenues, September and October were the two best months of the year. This would indicate that the Union Pacific had kept its operating expenses so well in hand, even with the adverse conditions, that it would have been able to continue the progress manifested during the federal control period. It happens, however, that the decline in business beginning in November has been especially sharp.

The total operating revenues in 1920 were $209,049,510, or 17.8 per cent more than in 1919; the operating expenses, $156,939,935, or 27.9 per cent more than in the preceding year, and the operating ratio 75.07 in 1920 and 69.64 in 1919. The total tons of revenue freight carried in 1920 were 28,320,410, the revenue ton-mileage being 12,882,042,232, or 9 per cent in excess of 1919. On this freight the Union Pacific secured a haul of 455 miles. The net tons per train in 1920 were 659; in 1919, 645; the average car load, 26 in 1920 and 24.54 in 1919.

The Union Pacific, however, makes its chief claim for attention in so far as its operating statistics are concerned in its remarkable daily freight car mileage, particularly on the Union Pacific Railroad itself as distinguished from the O. W. R. & N. or the O. S. L. For the year 1920 this averaged no less than 69.8 miles, as compared with a daily car movement in 1919 of 58.4. In October, 1920, a figure was reached of 84 miles. The net ton miles daily per car in 1920 averaged 1,229 as compared with 977 in 1919. In October, 1920, the average was 1,414. The Oregon Short Line in 1920 had a daily car movement of 43.5; the Oregon-

Washington 29.3; a combined figure for the system is not given.

The Union Pacific, referring to it again as a system, has been especially hard hit by the present slump in business. The total freight revenues in the first five months of 1921 were $45,469,077, a considerable reduction from the $53,934,226 of the first five months of 1920. The net railway operating income for the period in question this year has been $7,750,671. In the first five months of 1920 it was $18,510,956. One of the results of this decrease in business has been an end to the record-breaking figures of miles per car per day. In May, 1921, the daily car movement on the Union Pacific Railroad was but 33.3 and the ton-miles daily per car but 595.

The Union Pacific is noted as being a rather keen buyer of equipment. In 1920 there was spent for extensions and branches $74,351; for additions and betterments to roadway and structures $6,450,765 and for equipment $10,335,658. The additions to equipment during the year included 155 locomotives, 355 freight cars and 2 passenger cars. The company during 1920 placed orders for 100 locomotives, 2,069 freight cars and 81 passenger train cars. The additions in 1920 included such deliveries as were made on these orders and 55 locomotives allocated by the Railroad Administration.

The corporate income account of the Union Pacific shows for 1920 a surplus after the payment of dividends amounting to $6,452,454 as compared with $8,196,937 in 1919. The 1920 figures, however, do not include any amount covering the payment due from the government for operations during the guaranty period. The net railway operating income, as noted above, was $4,661,444 less than the guaranty. As in the case of the claim for undermaintenance during the guaranty period, the amount will be credited to income after the final settlement is made.

The operating results in 1920 compared with 1919 are as follows:

	1920	1919
Mileage operated	8,192	8,183
Freight revenue	$150,160,928	$128,914,431
Passenger revenue	38,170,277	35,738,572
Total operating revenue	209,049,510	177,447,698
Maintenance of way expenses	34,770,779	25,753,722
Maintenance of equipment	38,869,167	31,469,737
Traffic expenses	2,162,518	1,119,860
Transportation expenses	69,055,557	54,663,519
General expenses	7,318,804	5,989,549
Total operating expenses	156,939,935	122,682,049
Net revenue from operation	52,109,575	54,765,649
Taxes	12,086,046	8,908,937
Railway operating income	39,261,267	43,937,233

The corporate income account is as follows:

	1920	1919
Revenues over expenses (March 1 to Dec. 31)	$40,148,812	.....
Rental	7,009,453	$39,369,411
Railway operating income	47,248,264	39,369,411
Federal income and other taxes	10,754,015	2,293,226
Net income from railroad properties	35,962,262	36,549,100
Income from investments and other corporate income	12,298,957	13,026,687
Total income from all sources	48,261,218	49,575,786
Interest on funded debt and miscellaneous corporate charges	15,586,987	15,156,573
Net income from all sources	32,674,231	34,419,214
Dividends on stock of Union Pacific Railroad Co.:		
Preferred stock at 4 per cent	3,981,740	3,981,740
Common stock at 10 per cent	22,229,160	22,229,160
Surplus, transferred to profit and loss	6,452,454	8,196,937

COMMERCIAL TRAVELERS renewed their battle for a reduction in passenger fares on July 11, when a petition signed by more than 1,000 business men of the middle west was presented to the Western Passenger Association at Chicago, asking that the railroads west of Chicago and east of the Rockies put on sale an interchangeable mileage book at a 20 per cent discount from regular tariffs. It is stated by Franklin H. Dietz, representing the Interstate Commercial Travelers, that the organization would present the traveling men's argument at the next general meeting of the association.

Letters to the Editor

Statistical Reports to the Interstate Commerce Commission

WASHINGTON, D. C.

TO THE EDITOR:

In an article by F. J. Lisman on remedies for wastes in railway operation, in your issue of July 9, it is stated that methods could be found to consolidate the various reports to the Interstate Commerce Commission and abolish a great many of these reports. There is mentioned a report on the number of livestock cars. It suffices to state that the Interstate Commerce Commission requires and receives no such report.

Mr. Lisman, moreover, suggests, in other parts of his article, the desirability of additional information that would involve more detailed reports than are now required. He suggests that the commission ascertain the usage of freight stations by various commodities, the segregation of car repairs by classes of cars, the distribution of loss and damage by commodity classes, and the further subdivision of yard expenses. I think that careful study of the matter in detail will show that the commission is in reality very modest in its statistical requirements. A great deal of desirable information has not been called for simply because of the expense involved. Before any important statistical innovation is introduced, the cost and method of compilation is discussed with the representatives of carriers. Is it not incumbent upon Mr. Lisman to show where saving could be effected by abolishing reports to the Interstate Commerce Commission and to specify the particular reports now made which can properly be termed useless?

Some persons might perhaps mention the separation of expenses between freight and passenger services as useless, but Mr. Lisman appears to be among those who think it should be continued. It will not be denied that salaries of clerks are a considerable element in operating expenses, and it is possible that economies in clerical work can be effected. But it is important to distinguish the cost of furnishing statements to the Interstate Commerce Commission from the cost of compiling the data which are necessary to the management for proper supervision, and which would be compiled anyhow in a similar form even though the commission should not require such information.

M. O. LORENZ,
Director of Statistics, Interstate Commerce Commission.

The Dining Car Department An Advertising Asset

SEATTLE, Wash.

TO THE EDITOR:

The value of the dining car department as a traffic producer is in general underestimated by the higher railroad officers today, and as a result the management and present standing of this department are woefully in need of improvement. One of the most objectionable examples of mismanagement, in my estimation, is the getting together of dining car superintendents to arrange portions, prices, etc., a system inaugurated by the United States Railroad Administration, which has been continued. We can all understand that agreement must exist among the railroads insofar as freight and passenger rates, schedules and so on, are concerned, but I fail to see the advisability of agreements on prices in dining cars if we really want competition.

With equipment practically standardized and running

time between terminal points practically the same, competition on the various roads today is left to the dining car departments. If we want competition it does not appear reasonable that the various dining car superintendents should meet to establish a practical uniformity in prices and portions on the different roads.

I do not believe that a non-competitive policy is wanted by the railroads or at least by some of them, because as long as the dining car department has to lose money, it will be much better for it to render the service that will advertise the road. It has been proved that the dining car can be the biggest, cheapest and most effective advertising medium a road can have.

In the past the dining cars were operated principally for the convenience of a very few passengers. It is my belief that we should get away from that exclusive atmosphere that still pervades our dining cars and the aloofness of the majority of the dining car crews, which is felt by what we might call the common everyday passenger. Let us run our cars as popular priced restaurants, where good food, cleanliness and willing service are given to the public at reasonable prices.

It is an absolute impossibility to continue the present a-la-carte service and expect to be able to furnish meals to dining car patrons at prices within the reach of the majority. I have frequently seen lunch baskets carried nowadays on standard Pullman cars, something that was unknown in years gone by and there is no question in my mind but that this is caused by the high prices prevailing in dining cars. There is only one solution and that is to go back to the old table d'hote system wherever this is possible. This does not mean in any way a step backward for the table d'hote service has been in evolution as has anything else. Experiment has shown that the table d'hote plan has conserved more food than the a-la-carte system and also effected a considerable saving in man-power.

The average railroad officer will probably discredit this, adding that we had table d'hote service years ago and that it was done away with on account of the great waste. Two of the principal objections to the system were the size of the menu, the privilege of the patron to order anything or everything that was on the menu and the easy way for dishonest dining car crews to make money. These objections do not now exist.

First, there is no waste in the present manner of giving table d'hote service because the menu is limited; second, in addition to an up-to-date system of checking table d'hote meals, the working conditions on dining cars are so much better than they used to be, that it is now worth while for an employee to keep his position.

Another important point is the system of buying and the interference with the dining car department by other departments. A dining car department cannot be run successfully unless it is made a department by itself. By this I mean that the superintendent of dining cars should report direct to the president or maybe to one of the vice-presidents, certainly not to any traffic manager or general passenger agent who as a rule knows less about dining cars than the dining car man knows about running an engine. The dining car department should be in charge of an officer called a "Manager of Dining Cars" who will have all the authority that this title implies.

I do not believe we shall ever be able to make any money in the dining car department, but if we can run the dining cars at a limited loss, if we can give service and make them an efficient advertising medium, that is all we can expect to do.

It would only be justice that when a dining car department is a real business getter, it should be given credit for its proportional amount and have it entered up to either operating or advertising. H. FERRY.

A Train of 201 Cars

NEW YORK CITY.

TO THE EDITOR:

The report which you have printed of a trial run on the Virginian Railway with a train of 100 coal cars, making a train about one and one-tenth miles long, calls to mind the fact that long freight trains are getting to be somewhat common. This train on the Virginian evidently will make a record for length, as well as for weight and for the other elements which you mention.

While the matter is fresh in mind I want to call your attention to the movement of a train, in the year 1914, which was about 1½ miles long. I think perhaps that run was not much advertised, but it is well authenticated, and you ought to make a note of it, in your scrap book, alongside the Virginian record.

This train was run from New Haven, Conn., to Harlem River, N. Y., on the 15th of November. It was made up largely of empty cars; but even with empties a train over 8,000 ft. long is something of an event—(201 cars, estimated average length 40 ft.). This train was made up at New Haven and it consisted of 197 empties and four loads, with a caboose. It weighed 3,962 tons and was drawn by three large locomotives. From Bridgeport to Rye, 32 miles, it was run without a stop. There are on this section some up-grade sections of about 30 ft. per mile, but none of these is over about one mile long.

Just beyond Rye the coupling parted behind the 135th car and the train was stopped, with the locomotives west of Mamaroneck. The hind end was back near Harrison, making an unusual spectacle for the natives. It was deemed best not to risk the delay of coupling up, and so the engines, with the 135 cars, went on to Harlem River. The 66 cars constituting the rear part of the train were taken through to Harlem River by another locomotive.

This division of the New York, New Haven & Hartford is, as everyone knows, a busy passenger line, four-track, and in ordinary practice trains are limited, not by reason of the grades or curves or the power of the locomotive, but by the exigencies of the passenger service; the passenger trains must not be delayed. Therefore, the ordinary limit is 80 cars to a train. This long train was experimental. R. W. H.

Do Railroads Want College Men?

STATE COLLEGE, Pa.

TO THE EDITOR:

Of course the railroads need college men, but do they *want* them? The question raised by Mr. Richardson under the above title in your issue of June 17, goes further and asks if the railroads want the *pick* of college men. Mr. Richardson, who graduated in June, speaks for the undergraduate, but he also has had practical railroad experience.

If the American Railway Association will adopt the suggestion for some form of working relation, forming a link between the association and railway students, it will give an additional incentive to develop railroad courses and should form the basis for a more general student response similar to results in other national societies. It may also assist the railroads in obtaining more picked men.

I do not infer that Mr. Richardson intends to criticise present college courses, or all of the railroads, for lack of interest in the railroad student, for he knows full well the co-operation between our railroad mechanical course and the Pennsylvania system and other railroads. I have found the railroads, when requested, willing to do their part in assisting us in our work, and believe that further advancement will be made if such co-operation becomes more general. It is, however, a well-known fact that the railroads as a whole and the railroad associations have led some of the

best college men to feel that the railroads are indifferent. This impression can be corrected, but only in one way.

There is a good reason, known to railroad men, why no representative from railroads came to this college the past year, but there has been one or more in previous years, and the graduates in railroad mechanical engineering could be placed many times over. During the last year, five lectures were given to seniors by men from outside representing the railroads and allied interests, and this is more than was delivered in any other single branch of engineering in the same period of time.

A. J. WOOD,
Professor, Railroad Mechanical Engineering.

A New Plan for the Settlement of Per Diem Accounts

CHICAGO.

TO THE EDITOR:

Much has been said recently regarding the necessity for reducing expenses and I feel that a brief outline of one step which might advantageously be taken in that direction is not now amiss. Therefore, I am presenting the following plan, which contemplates the compiling of per diem accounts direct from interchange reports on a car balance basis, which can be used for the settlement of per diem balances through a clearing house or with direct connections, for the consideration of those interested in advancing the efficiency of accounting:

DEFINITIONS:
CARS:—All cars owned by roads subscribers to the per diem agreement.
CAR BALANCE:—The difference between the total number of owner's cars on foreign lines and the total number of foreign cars on that line.
POTENTIAL (or unused) DAYS:—A car away from home has a potential earning power in days, in any month, equal to the number of days in that month.
LAST DAY.—The last day of the month preceding the installation of the plan.

All cars have a potential earning power in days, counting the date interchanged as unused, equal to the number of days remaining in the month. Therefore, the delivering road would charge its connections the total number of cars shown on the interchange report each day of their total value in unused days for that date.

Thus—On September 1, 30 cars at 30 days each = 900 days,
September 2, 20 cars at 29 days each = 580 days.

Assuming that the roads had 100 per cent ownership on line on the first of the month, the difference between the total potential days on cars delivered and the total potential days on cars received for the month would be the actual per diem balance for that month.

The difference between the total number of cars delivered and the total number of cars received for the month would constitute the car balance and would be charged to the owing road, or the clearing house, on the first day of the following month at their total potential value in days for that month.

Car balance would be carried forward from month to month with the result that a carrier receiving a car and signing the interchange report therefore would pay per diem on that car perpetually unless it, in turn, delivered it, and secured a receipt for it, from the same or some other carrier. This would automatically force each carrier to complete deliveries, either by proper interchange report at the time the car was delivered, by supplementary report or pay the penalty.

The usual way of arriving at a car balance is to take the car ownership as a basis, inventory all cars on line and the difference between cars owned and cars on line constitutes the car balance. It is plain that figures arrived at in this way could hardly be used as a basis for clearing house settlements. A basis for a clearing house settlement can be arrived at, however, by having each carrier make a per diem report in triplicate, one to the clearing house, one for the owner of the car or cars remaining on its line on the last day of the month prior to the installation of the new plan, and one for its record.

Theoretically, we would then have the location showing the initial and number of all cars away from home on a certain day, in a permanent form and separated as to ownership. There would probably be cars not reported. These the owners would be required to trace. When a car was located and per diem report rendered to the owner for the one day due, the clearing house would adjust the car balance and per diem as explained later.

The total number of cars reported by all roads would constitute the debit to the clearing house. A commercial bookkeeper would term it a control account. The several items in this debit control account would be distributed to the debit of each carrier, in one item, covering all cars reported by it. The total of the distribution would balance the control account. Likewise, all cars reported must be credited to the different owners. The total number of cars reported would now be the credit control account to the clearing house, and the items would be distributed to the different roads according to ownership. The distribution would balance the credit control account. The clearing house would now be in a position to begin doing business without a deficit.

The difference between the total number of foreign cars reported as being on its line by a carrier and the total number of its cars reported by all other carriers would be the existing car balance, as reported, for that carrier. This balance should agree with the balance as carried on the clearing house books and it would be the basis for settlements.

An error in car number or initial on an interchange report would not impair the correctness of the per diem accounts.

A car omitted from an interchange report would be added to that report if the error was discovered in time to include in the current month. Where an error is discovered in the following or any subsequent month, the car would be reported to the clearing house on a supplementary report signed by the proper officer of both carriers. The car would carry a charge in days equal to its potential value on the date interchanged, plus all days in each of the following months, including the month it is taken into account.

A car entered on an interchange report in error would be deducted from the report if the error was discovered in time for correction in the current month. Otherwise it would be handled in the same manner and would carry the same value in days as an omitted car in the reverse direction.

When a car, not reported to its owner for the last day, was located, the erring road would be charged the sum of the days in each month, including the month in which the adjustment was made, for all time elapsed since the date the plan went into effect. The movements of the car since the plan went into effect would have no bearing on the claim. As all cars would finally be located by their owners, a carrier would gain nothing by a failure to report a car.

Switching and other reclaims to be handled as at present, with settlement through the clearing house.

Some of the advantages of the plan are as follows:

Does not require a large force of train employes.

The effective data could be made retroactive to any month that the drafts are not yet drawn against per diem reports.

Its benefits could be extended to cover non-subscriber roads by local agreements between the roads interested.

It would not require any change in present car records.

A force of examiners would not be needed.

Reports could be balanced with those of immediate connections, as each road would be working from the same reports. Settlements could be made the following month without fear of making overpayments, which would result from the same procedure under the present plan.

Relieve the banks throughout the country of the burden of clearing the hundreds of thousands of drafts now turned over to them for collection every month.

Finally, it would make possible a saving in labor and expense, which each car accountant can figure for himself.

H. E. SANDERS.

France Undertakes Huge Electrification Program

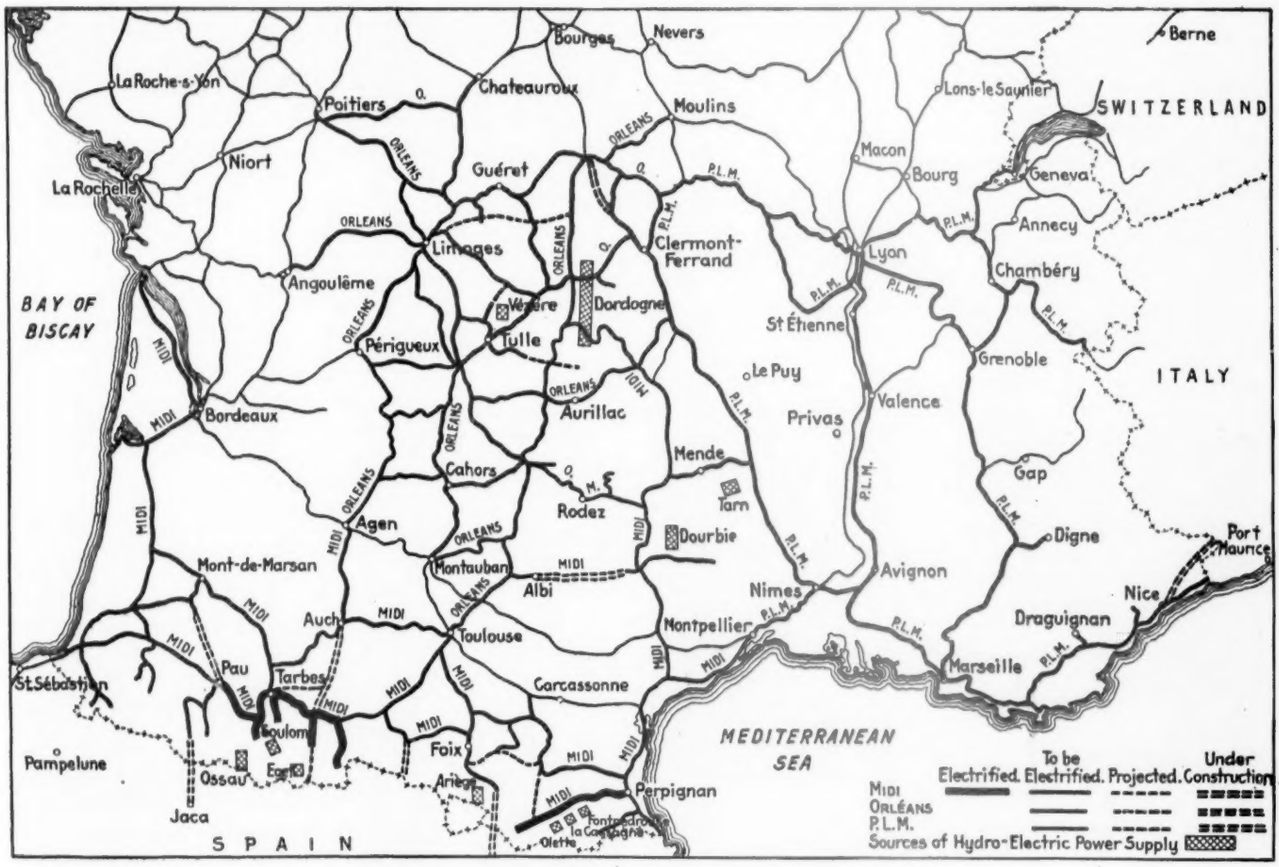
Utilization of Water Power and High Price of Fuel Are Most Important Considerations

By Oliver F. Allen

Formerly Major of Engineers, American Expeditionary Forces

THE ELECTRIFICATION of French steam railway lines, as distinguished from street car or interurban service as those terms are understood in America, began by the equipment about 1900, and almost simultaneously, of the tunnel and connecting tracks between Quai d'Orsay station and the Austerlitz station of the Paris-Orleans Railway in Paris with an extension for suburban service as far as Juvisy and the suburban line from the Invalides station in Paris to Versailles on the old Western Railway, now known as the State Railways. A division from Fayet to Chamnoix on the electrifications, in the French Alps and in the Pyrenees, were made to meet the requirements of mountain grades and to take advantage of water power. These first installations are all still in service, and the further extension of three of them are the first steps in the present program.

The successful operation of these early installations, the facility with which they took care of increased traffic with a moderate increase in investment, combined with the successful development of electric traction in America and elsewhere, led the French railway engineers to study, before the



Southern France, Showing Lines to Be Electrified

Paris-Lyons-Mediterranean line was electrified about 1902, and one on the Southern Railway, in the Pyrenees, from Villefranche to Vernet-les-Bains by 1910. The two electrifications at Paris radiating out from the centers of the city, were made for the purpose of increasing terminal facilities, improving suburban service and removing the smoke nuisance. They were of the same general order as the early electrifications in America at the New York City terminals and the Baltimore & Ohio tunnel at Baltimore. Current for both of these early Paris electrifications has always been supplied by steam plants burning coal. The other two early war, the problem of reducing their coal bill by the electrification of their main lines.

The electrification of the lines from Limoges to Gannat and from Clermont-Ferrand to Tulle and the development of steam power stations in the central plateau, the Massif Central, where coal is to be found, was studied by the engineers of the Paris-Orleans before the war. The electrification of the mountain divisions of the Paris, Lyons & Mediterranean Railway northeast from the French terminal of the Mt. Cenis tunnel at Modane and of more Southern Railway lines in the Pyrenees was all carefully studied before 1913.

During the two years preceding the war, the Southern Railway had completed preliminary negotiations for electric locomotives and had placed firm orders for samples.

It is apparent that irrespective of the great economic changes resulting from the war, especially in the matter of cost of coal and labor, the electrification of the French railways would have gone ahead under pre-war conditions and it is possible that had France not been set back five years by the war, a considerable portion of the present program would be an accomplished fact today.

As soon as mobilization began in the last days of July, 1914, the entire resources of the French railways were placed at the disposal of the government, and from then until after the armistice all the railways were operated as a unified command under the fourth section of the general staff of the French army. Under war conditions no attention was paid to the matter of electrification.

The Reconstruction Program

The undreamed of increases in the cost of coal and the diminution of personnel, combined with the eight-hour day movement, forced the study of reconstruction and after-the-war railway economic problems while we were all still fighting the Boches. This study was so far advanced that three days after the armistice, that is, on November 14, 1918, a committee was formed by a decree of the Ministry of Public Works for the study of the electrification of the standard gage steam railways. Within two weeks, November 23, 1918, this committee was organized and a program adopted for the study of the electrical operation of railroads all over the world, particular attention to be paid to what had been accomplished in America, France, Switzerland, Italy, England, Sweden and Germany. The visit of representatives of this committee to the United States in 1919, and their exhaustive reports on electrification in this country as well as in Europe have been published and are so well known to railway engineers that further reference will not be made to this committee's work except to point out a few important results which might be advantageously considered by American railways.

First Electrification in France

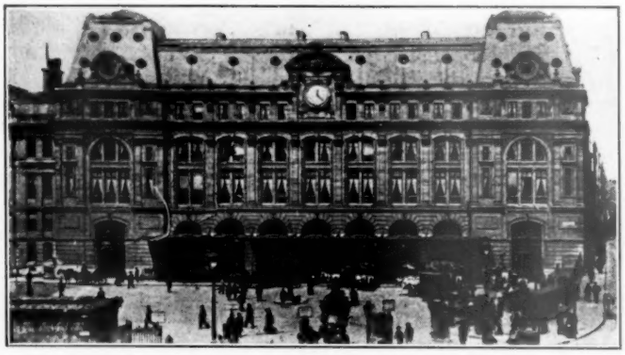
Low building facing park is Invalides Station, Paris, whence suburban line to Versailles was electrified in 1900

Equipment for All Lines to Be Standardized

Realizing that successful electric traction must be as flexible and as universal in its application as steam traction, the French concluded that all their main line electrifications must be standardized to such an extent that the electric locomotives of any company can circulate on all the lines in France just as easily as steam locomotives can. This involves agreement by all of the railways to use electric current of the same characteristics. That decision has been made by the railways and approved by the Ministry of Public Works and the Ministry of War. It standardizes 1,500 volts continuous current for all French railways. Incidentally it is interesting to note that this French action has been followed by the adoption of the same standard for Belgium and for England.

Both Overhead Wire and Third-Rail Current Collection Will Be Used

The voltage selected permits the use of either overhead trolley wires or third-rail for delivering the current to the locomotive and it is probable that both will be used according to local conditions and the relative cost. Irrespective of the exact method of suspension of overhead wire or of support or type of third-rail which may be used by any particular railway, standardization will be carried to such a point that the pantagraphs and contact shoes of all the locomotives will be so designed and located that, they can collect current on any electrified line in the whole country.



St. Lazare Station of the State Railways, Paris

The investigations showed so plainly the restrictions on the development of electric traction resulting from lack of standardization in other countries, especially in America, that the French railways and government very soon realized the neces sity for an organization to study and make effective standardization work begun by the decision to use only one kind of current. Something over a year ago the State Railways, the Southern Railway, the Paris, Lyons & Mediterranean Railway, the Paris-Orleans Railway and the railways of Alsace and Lorraine, with the co-operation of the Ministry of Public Works, created an organization for the study of railway material known as l'Office Central d'Etudes de Material de Chemins de Fer. It will be noted that the Northern and Eastern Railway systems are not included in this group. It was felt that their problems of reconstruction were so difficult that they should be left entirely free to restore service by any means available. In articles which have appeared recently in the *Railway Age* the terrible destruction of the Northern Railway has been referred to. Certain parts of the Eastern Railway suffered in exactly the same manner and the parts of their lines which were not destroyed were subjected to the most intensive traffic possible by the requirements of the French and American armies.

Frontier Development Must Provide for Military Factors

Another aspect of the matter is the military situation and the realization that along the frontier it must always be possible not only to mobilize an army quickly but to move it and its supplies across the frontier rapidly and efficiently. If the railway lines near the frontier were equipped for electric traction, it might be possible to mobilize as rapidly

as with steam locomotives, but getting an army across the frontier would be another matter. There is some doubt about the relative reliability of the necessary interconnected generating stations, distributing stations, transmission lines, etc., for electric locomotives and the supply of water and fuel for steam locomotives, when subjected to the hazards of long range shelling and airplane bombing. This question is still so far from being decided that the electrification of the railways of the north and east of France is not contemplated now.

Immediate Development Will Be Limited to Terminals and Suburban Lines

While the State Railways are in the group which created this standardization committee their electrification for many

Northern Railway Station at Paris

years to come will probably be confined to terminals and extension of suburban service in the immediate vicinity of Paris. The major portion of their lines as well as the lines of the Northern and Eastern Railways cover territory in which there are not only no large water powers available but in much of which the amount of condensing water to be had is so limited as to curtail seriously the construction of very large power plants. It is probable that in those parts of France north of a line running southwest from Paris to the Atlantic Ocean at St. Nazaire, and those between Paris and the Belgium and Luxembourg frontiers, the railways will not be equipped for electric traction until electric power may be available either from the Rhine or the Alps, nor until the electrification of the other parts is largely completed. In view of the demands for power in the neighborhood of Paris and between Paris and the German and Swiss frontiers, all electric energy which may be available within the next twenty years will probably be utilized before it gets to the north and northwest, or for the metallurgical and other industrial plants in the north and east where needs for electric power are economically more urgent than those of the railways.

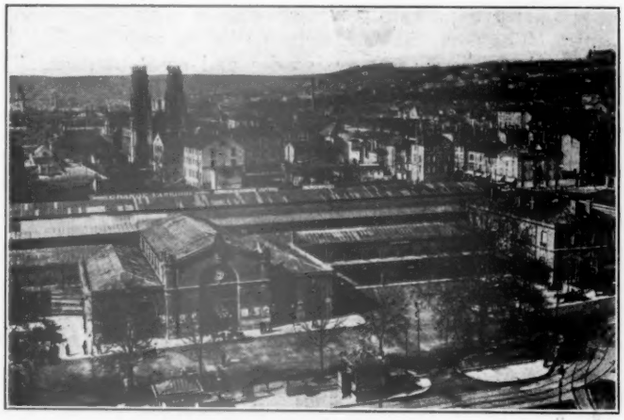
Effects of High Cost of Fuel and Labor

This standardization committee of the principal railways outside of the north and east is working for general standardization and in many aspects of its work, through the Ministry of Public Works and the close affiliation of all the railway executives and engineers, it will affect all of the railways, including the north and east. So far as its practical application to electrification is concerned its work will be confined for a long time to the railways which made their first electrification twenty years ago and the railways in the recovered provinces of Alsace and Lorraine. In fact, the men who are most active today in carrying on the French railway electrification program are the very men who personally had to do with the four original installations referred to above.

The electrification of the French steam railways is not a new proposition resulting from the war, but is the natural and logical evolution of those first applications at terminals and in mountains almost a generation ago. It is true that the war has brought about certain economic changes, particularly in the cost of fuel and labor, which will tend to expedite the change from steam to electric power. For instance, the cost of coal before the war was from 20 to 30 francs per metric ton and since the war reached the maximum in 1920 of 300 francs per ton with a peak of 500 francs, which is the price actually paid by one railway for part of its coal. It is now descending to between 100 and 150 francs per ton. There is little likelihood, however, of coal going to less than about 75 francs per metric ton, that is, three to four times pre-war price, for many years to come. On the other hand, the tremendous increase of the public debt in France and the general economic losses resulting from five years of war tend to retard the expenditure of the vast sums of money required for extensive electrification and it is doubtful if the urgency of the high fuel cost and the labor situation is not so far offset by the financial situation as to make the carrying out of the program move slower rather than faster than it would have had there been no war. Our French friends seem to have taken the lead in the world in standardizing and adopting electric traction for steam railways, and in spite of the delays and embarrassments resulting from the war they may still go ahead faster than we will in this country, particularly in the matter of high speed passenger service.

Reasons for Electrification

Their reasons for electrification are substantially the same as influenced similar decisions elsewhere and are too well known by railroad men to be discussed in detail here. The determining factors are: first, utilization of water power to reduce the amount of coal imported into France each year and to reduce operating expenses; second, the ability to increase terminal facilities and improve terminal service by substitution of motor cars for suburban service and electric



Eastern Railway Station at Nancy

locomotives for main line passenger trains and freight service; third, the ability to handle heavier freight trains and move greater tonnage on mountain divisions than is possible with steam locomotives without great expense for enlarging tunnels, strengthening bridges, and other items of increasing the number of tracks. There are many other reasons which have affected the decision to start a comprehensive program of electrification, but they are more or less subsidiary to these main considerations.

Program Calls for 1,200 Miles of Main Line Each Year

The program, the execution of which is being seriously undertaken, involves electrification within the next fifteen years of approximately 6,000 miles of main lines mostly

already double track and the building of hydro-electric plants and high tension transmission lines of the first magnitude. French engineers have gone so far as to promulgate a tentative program involving electrification of over 1,200 miles of main line per year and putting into service of not less than 400 new electric locomotives every year. Financial considerations will probably greatly curtail such a program, but the more conservative one of the electrification of 6,000 miles within fifteen years will involve buying between 200 and 300 new electric locomotives per year, which is a bigger project than has yet been undertaken in any other country.

Power Supply

The hydro-electric developments to furnish the necessary power will be carried on simultaneously in the Pyrenees for the lines of the Southern Railway; on the central plateau for the Paris-Orleans Railway and in the French Alps for the Paris, Lyons & Mediterranean Railway. These are being studied in connection with the development of a great network of power transmission for industrial requirements. Under the leadership of the Ministry of Public Works a program has been prepared for a transmission network at 220,000 volts for the main lines and 100,000 to 150,000 volts for the secondary lines which will cover all the northern, eastern, central, southern and southwestern part of the country with great trunk lines from the upper Rhone valley and from the Rhine valley in Alsace in long loops across the country to Paris.

The first plants and transmission lines will be built partly by private organizations, including some of the railways, and partly by the government. Some of the 100,000 and 150,000 volts lines are now under construction and the first additional hydraulic plants with a total capacity of the order of 300,000 h.p. may be under construction within a year.

Belgium

In Belgium the program covers several of the lines which converge at Brussels. The first step will be to take care of the intensive passenger traffic between Brussels and Antwerp. The next, the freight traffic in the metallurgical district where there are steep grades and great tonnage. The rapid fall in the price of coal (that mined locally plus that shipped in from Germany has already accumulated until Belgian stocks on hand present a serious problem) combined with the delay in getting any reparation payments from the always delaying Germans has set back the Belgian electrification program indefinitely.

Railroad Settlement Plan Tentatively Agreed Upon

WASHINGTON, D. C.

DEFINITE announcement is expected before the end of the week of the plan for funding for 10 years at 6 per cent the indebtedness of the railroads to the Railroad Administration for additions and betterments made during the federal control period, and a compromise plan for expediting the settlement of the railroad claims against the Railroad Administration for the balance of their rental due and other items. This will make possible some early payments to the roads of cash which they can use to pay their outstanding bills and increase their maintenance work.

A plan under which the railroads would surrender a large part of their claims for undermaintenance in return for the funding and for a more expeditious settlement of their claims was tentatively agreed upon, after many conferences with the government officials, at a meeting of the steering committee of the Association of Railway Executives in Washington on Monday and was submitted to the member roads of the association at a meeting in New York on Wednesday afternoon. President Harding also discussed the matter on Monday with Chairman Clark of the Interstate Commerce Commission and Director General Davis of the Railroad Administration and on Tuesday he held another conference on it with Secretary Mellon of the Treasury, Secretary Hoover of the Department of Commerce, and Chairman Cummins of the Senate Committee on Interstate Commerce. While the details have not been made public at this writing the plan contemplates that the government shall accept 6 per cent securities of the railroads for the capital expenditures and that the War Finance Corporation shall advance the cash which the Railroad Administration will need, in addition to some $200,000,000 which it still has available, to pay its obligations to the railroads. It is to furnish the cash by taking over railroad securities from the Railroad Administration which it is not desired to place on the market at this time but which can be readily marketed under more normal conditions, in accordance with a suggestion made by Director General Davis in his letter to the House committee on appropriations some time ago as an alternative to an additional appropriation for the Railroad Administration. The War Finance Corporation has a book credit with the Treasury which it would require legislation to make available for this purpose, and it would be necessary for the Treasury to sell certificates of indebtedness to obtain the funds, but it would not require a Congressional appropriation.

The plan does not contemplate an immediate payment to the roads of any definite sum but the funding of the capital expenditures will make it possible for the Railroad Administration to pay the railroads some large sums on account of the undisputed items of their claims in advance of a final settlement, and the railroads, under the tentative plan, would agree to give up certain principles on which their undermaintenance claims have been based. It is understood that the principal concession required of the roads was that they waive that part of their claims for undermaintenance based on the inefficiency of labor and that they accept in general the interpretation placed on the standard contracts by the Railroad Administration, which would measure its obligation to maintain the properties on the expenditures during the test period plus an allowance for the increase in wages and prices of materials. The roads had taken the position that this was insufficient without an allowance for the fact that more man-hours were required to perform a given unit of work during the control period than in the test period.

The Interstate Commerce Commission has had the same question before it in connection with the claims for the six months guaranty and it is understood that its ruling on the maintenance interpretation has been withheld pending the negotiations covering the federal control period in which Chairman Clark has participated.

Agreement by the executives to the plan for the funding of the roads' obligations to the government was indicated in a statement given out by T. DeWitt Cuyler, chairman of the Association of Railway Executives, at the close of the meeting of the member roads of the association at New York on Wednesday. The statement follows:

"Today's meeting was for the purpose of receiving a report from the steering committee—now known as the executive committee—on the efforts to reach a final settlement with the government of all matters pending from the period of federal control. Any further statement on the situation must come from the President of the United States."

THE PENNSYLVANIA has completed preliminary arrangements for the use of the Belt Line terminals of the Muskegon Railway & Navigation Company, Muskegon, Mich., and will develop a car ferry service across Lake Michigan connecting with railroads at Milwaukee.

Inadequate Recognition of Chief Clerks' Position

Salaries Smaller Than Those of Many Organized Employees, While Duties Are Those of Officers

By a Chief Clerk

THE PLIGHT of the American railroads and the questions concerning their rehabilitation are matters that interest everybody. The question of the responsibility for the desperate situation in which the railroads now find themselves is rather interesting and has provoked much fruitless argument. Labor is shouting at the top of its voice that capital is solely to blame, but this assertion is not corroborated by the facts. It is true enough that labor fared badly in that none-too-distant era when the word of capital was like the laws of the Medes and Persians. It is also true that the labor unions were natural products of that era and those conditions, organized as means of self-defense. But no sooner did they grow strong enough to stand on their own legs than they began to use the very tactics they had been organized to combat. They schemed to get maximum pay for minimum work, to protect their lazy and incompetent members and to harass the representatives of capital needlessly and often without hope of reward.

The first big mistake of the labor unions was in contending for uniform rates of pay. No well-informed person believes that all workers of any given occupation are worth exactly the same amount per hour or per month. If the best mechanic in an average railroad shop is worth just 85 cents an hour, the poorest mechanic in that shop is probably worth not more than 10 cents an hour. If the poorest mechanic is worth 87 cents, the best is worth something like six to seven dollars an hour. Men are not created equal nor can they be equalized. The uniform scale is a source of perennial discouragement to the ambitious workman and a misguided solace to the drone.

The fatal mistake of some of the railroad labor unions was made during the World War. When the Railroad Administration signed agreements with the various unions awarding large increases in rates of pay and outlining working conditions that labor might well have regarded as almost ideal, the labor leaders had a golden opportunity to strengthen and fortify their organizations by urging the men to deliver what the administration had agreed to pay for, but instead of doing this some of the organizations were apparently foolish enough to curtail production systematically by working more slowly and by such other methods as were available. This policy was suicidal. Disaster was certain to result and is now resulting. Nothing can be enjoyed that is not first produced.

Loyal Service Penalized

On the other hand, some of the policies of the average railroad management have been for many years and still are, as I see it, surprisingly short-sighted. Consider the case of the railroad clerk. This has probably been the most loyal, the hardest-working and the least appreciated of all classes of railroad workers. For years prior to government control, the roads used all means in their power to prevent the clerks from organizing; and they succeeded on a majority of the roads. At the beginning of government control, the average railroad clerk's rate per hour worked was disgracefully small, but the organized classes had been granted, from time to time, increases of rates and other concessions affecting their working conditions and had gradually reached a state which, compared with the situation of the clerks, resembled affluence. It seems obvious that the wise policy would have been for the railroads to have given the unorganized clerks everything that was given to the organized classes. In this manner the railroads could have proven what they claimed: that there was nothing tangible to be gained by organization. Moreover, there is never any legitimate excuse for penalizing fidelity and loyalty.

There is only one class of workers on the railroads now, I believe, that is not organized and not classed as official. This class is the chief clerks. When the readjustments of rates were worked out in 1918, the average shop foreman was given an increase about double that given the average chief clerk. The only apparent reason for this was that the foremen had formed a national organization early in 1918, whereas the chief clerks belonged to no organization and were therefore not in position to demand the same consideration that everybody else on the railroads received. Prior to that time, the foremen and the chief clerks in division offices had received approximately the same rates but the new rates of the chief clerks mentioned were generally far below the new rates of the cheapest foremen.

A chief clerk who is successful must have education, intelligence, experience, energy, enthusiasm, executive ability and numerous other attributes and qualifications that are thought to be valuable. When the office organization breaks down, the officer in charge is in a serious predicament. The details of the business revolve around the chief clerks in the division and higher offices. When an officer is off his territory, for any reason, the chief clerk usually runs the railroad; and the chief clerk attends to the details of the business at all times. If the chief clerk is competent to do this, he should be paid what the service is worth, and if he is not competent, he should be replaced.

Inadequate Recognition

Not only is the pay of chief clerks comparatively poor, as I see it, but the recognition accorded them otherwise is much less than they are entitled to by reason of the service required. They are certainly assistants to the officers in charge and I maintain that they should be so classified. There may be sound objections to this proposal but I cannot think of any. Possibly the railroads fear that such action might be made the basis of argument for increases in rates of pay. But the salary should be based on the character of the service required and delivered and should be forthcoming regardless of the classification. There may be some railroad officers so narrow as to oppose official titles for chief clerks on the theory that this might detract from the prestige of the officers themselves but I do not believe that such officers are numerous. The average railroad officer is a man of considerable breadth of mind, has a proper amount of confidence in his own ability and does not consider it necessary to suppress his subordinates in order that he may be more conspicuous. The subordinates constitute the organization and the organization makes or breaks the officer at its head—therefore the wise and prudent officer encourages the ambitions of his subordinates and recognizes honest merit wherever he finds it. "A chain is no stronger than its weakest link." The strength of any organization depends on the strength of its individual members.

A few years ago a certain young man whom we will call Harvey Hammond was chosen as chief clerk in the office of a general officer of the operating department of a certain railroad. Young Hammond was well educated and had ex-

perience in all lines of operating department office work, having started as a stenographer and mounted, round by round, the short ladder reaching to the position of chief clerk. He was energetic, loyal, resourceful; had plenty of initiative and executive ability. He also had that rarest of combinations, brains and balance.

The officer in question did not enjoy the best of health and eventually his health broke down completely. His physician forbade his talking business with anybody for months. He had no assistant and the management did not appoint another officer pro tem. Harvey Hammond suddenly found himself charged with all the duties and responsibilities of a general officer—without the title—or the salary. He did not hesitate but welcomed the opportunity to show his calibre. Committees of the labor unions appeared before him with grievances, real and fancied, and he fought them single-handed when they were wrong or agreed to their demands when they were right. He was an expert in the various agreements between the railroad and the labor unions. If he made mistakes they were so slight that they passed unnoticed. His work in this unique situation naturally attracted a good deal of attention. All who had an opportunity to watch his performance during this period agreed that he made good as a general officer—without the title—or the salary.

At a later date, the rivalry between two railroads for the services of Harvey Hammond was decidedly keen. Each wanted him as a chief clerk and he went with one of them in that capacity, at a salary much smaller than the average shop foreman draws. His name does not appear in the Pocket List nor on any correspondence. His present salary is considerably below that of any shop foreman in the metal trades but every shop foreman, even the most unimportant, is regarded as an officer of the railroad he serves.

An unusual case? Certainly. But it illustrates my point: that a chief clerk is expected to measure up to any emergency. Every chief clerk meets emergencies at times and his competency is judged largely by the manner in which he meets them. If he is incompetent, any little emergency will unhorse him, but if he understands his business and is conscientious, the percentage of his mistakes will be gratifyingly small.

I do not claim that the average chief clerk could or would have duplicated the performance of Harvey Hammond but I do maintain that the average chief clerk would cheerfully have tackled the problems and done his best; and he would have done much better in this emergency than the average foreman who is designated as an officer of the railroad and whose salary is much higher. The plan of organization on the railroads shows that this fact is clearly recognized. In every case where the officer in charge is absent from his post for any reason, the chief clerk takes charge in the name of the absent officer. If any of the foremen were supposed to be better equipped to cope with a situation of this kind, such foreman would naturally be called upon to act in place of the absent officer.

It is sometimes argued that a chief clerk is not entitled to as much consideration as a shop foreman because he has not served an apprenticeship of any kind. This fallacy is conspicuous. The shop foreman has served an apprenticeship of four years whereas the chief clerk, if he is properly equipped for his job, has spent no less than seven to fifteen years in acquiring an education, after which he has spent perhaps three to fifteen years in learning the details of the various office jobs over which he has supervision. This comparison is not intended to disparage the shop foreman. His importance on a railroad is obvious and is universally conceded. For many years his slender salary was a very good example of what may be termed wasteful economy. Now that the wrongs of the foremen have been righted, the wrongs of the chief clerks should have attention, for the latter hold positions every whit as important as those of the foremen. A good man in any capacity who does not get proper recognition will eventually become discouraged, and discouragement impairs efficiency.

Commendation Not Adequate Remuneration

No railroad officer of marked ability fails to appreciate the value of a good chief clerk but this appreciation, for some mysterious reason, appears to be purely personal. The officer may say to the chief clerk: "Your excellent handling of the office relieves me of endless details and I appreciate it." Not every officer will commend a subordinate to his face but many of the best of them will. The normal man is susceptible to flattery and the abnormal man is abnormally susceptible to it. Remarks of this kind are gratifying but the fact remains that all the recognition accorded even the exceptional chief clerk is some private commendation.

In offering these sentiments, let me disclaim any malice or any desire to place the blame on any man or group of men. The conditions to which I call attention are a part of the system under which the railroads are operated. The railroads, like people, are slaves of custom. The policy of the big roads and of some of the smaller ones is and has ever been to concede nothing that could not be taken by force or the withholding of which would not endanger their own welfare. This policy has proven unwise. The organization that is rewarded for using dynamite will certainly return next week or next month or next year with more dynamite; and the patient, loyal, dependable employee who received only a two per cent increase when the dynamiters got ten per cent will just naturally ask himself what he has gained by his patience and loyalty. It pays to be fair. The most stupendous mistake of all history was Germany's recent attempt to prove that might makes right.

Consolidation Built by Baldwin Locomotive Works for Mexican Fuel Company

Unit Cost Data Reduce Freight Train Expense

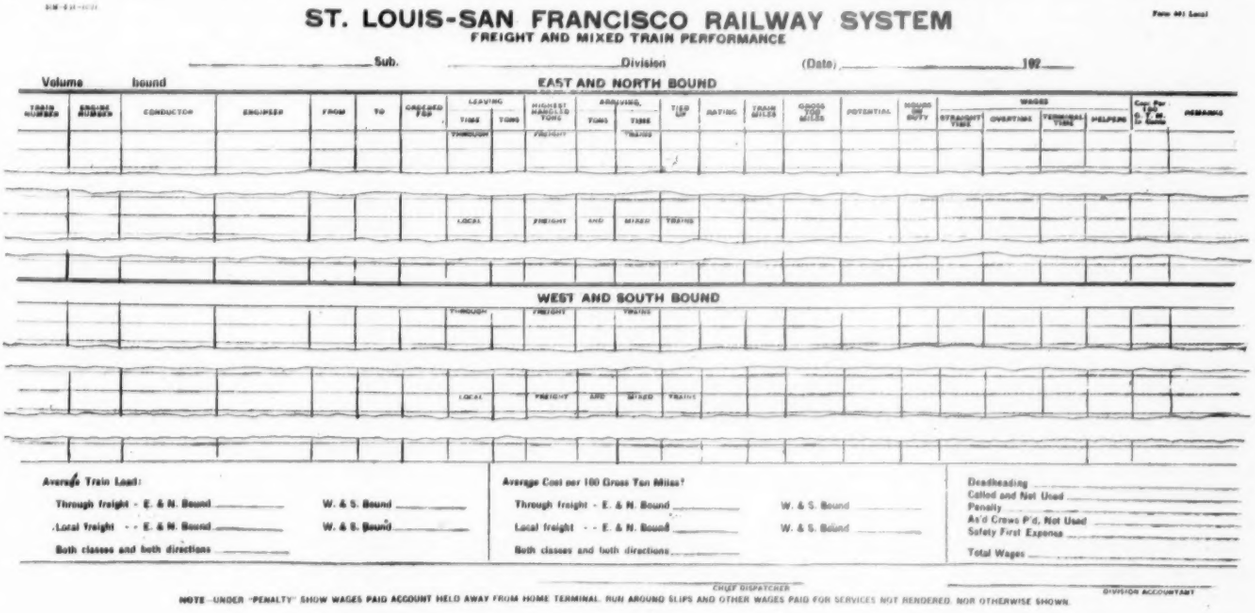
Prompt Distribution of Information Aids in Cutting Wage Charges Per Hundred Ton Miles

By J. E. Hutchison

General Manager, St. Louis-San Francisco

HAVING REALIZED for many years that the successful operation of any manufacturing establishment is dependent to a very large degree upon the possession of unit cost data, it has been constantly in my mind that there should be a method of measuring accurately the cost of freight train operation, reduced to the item of each train moved, and available immediately after each movement is completed, if the full measure of economy is to be secured.

For illustration, some years ago I went through a furniture factory with the manager of the plant, who was conducting the business in a manner that was showing a nice net profit each year. They were manufacturing many articles of furniture. In going through the plant, I asked the cost of producing quite a number of different articles. In each instance



ST. LOUIS-SAN FRANCISCO RAILWAY SYSTEM

FREIGHT AND MIXED TRAIN PERFORMANCE

Form 401 Local

Sub. _____ Division _____ (Date) _____ 192__

Volume bound

EAST AND NORTH BOUND

TRAIN NUMBER	ENGINE NUMBER	CONDUCTOR	ENGINEER	FROM	TO	CAR-AXLES TRIP	LEAVING TIME	LEAVING TONS	HIGHEST HANDLING TONS	ARRIVING TIME	ARRIVING TONS	TIED UP	RATING	TRAIN MILES	GROSS TON MILES	POTENTIAL	HOURS ON DUTY	WAGES STRAIGHT TIME	WAGES OVERTIME	WAGES TERMINAL TIME	WAGES HELPERS	Cost Per Ton Per 100 Gross Miles	REMARKS
							THROUGH FREIGHT			THROUGH FREIGHT													
							LOCAL FREIGHT AND MIXED			TRAINS													

WEST AND SOUTH BOUND

							THROUGH FREIGHT TRAINS																
							LOCAL FREIGHT AND MIXED TRAINS																

Average Train Load:

Through freight - E. & N. Bound _____ W. & S. Bound _____

Local freight - - E. & N. Bound _____ W. & S. Bound _____

Both classes and both directions _____

Average Cost per 100 Gross Ton Miles:

Through freight - E. & N. Bound _____ W. & S. Bound _____

Local freight - - E. & N. Bound _____ W. & S. Bound _____

Both classes and both directions _____

Deadheading _____

Called and Not Used _____

Penalty _____

As'd Crews P'd. Not Used _____

Safety First Expense _____

Total Wages _____

CHIEF DISPATCHER

DIVISION ACCOUNTANT

NOTE—UNDER "PENALTY" SHOW WAGES PAID ACCOUNT HELD AWAY FROM HOME TERMINAL. RUN AROUND SLIPS AND OTHER WAGES PAID FOR SERVICES NOT RENDERED, NOR OTHERWISE SHOWN.

Form Used in Reporting Wage Cost of Handling Trains

I was told that he did not know. I asked what they sold it for and was given the price; then I asked if they were making any money on that particular article, to which the reply was made that they did not know, but that the business as a whole was showing a profit. I suggested the advisability of working up unit cost data showing the cost to manufacture each one of these different articles. The idea appealed to the manager and, at considerable expense and with a great deal of effort, very accurate cost data were collected with the result that the company abandoned more than half of the items that it was manufacturing because the cost data revealed that it was incurring an actual loss in some instances and a very meagre profit in others, the plant being concentrated on the manufacturing of such articles as the cost data revealed were yielding a reasonable profit. The result was that without increasing the production the plant showed a net profit of more than double what it had shown before.

While a railroad manufactures but one article—transportation—there are a great many units of this article. In fact, every train run is a unit, and the cost of the train, expressed in ton-miles, should be definitely known when the trip is completed. It has doubtless been in the mind of every railroad operating officer for many years that the most difficult thing to determine was where to fix his train load. Railroads have conducted experiments along this line and the general theory has been that economical operation followed the train load absolutely; the greater the train load the greater the economy. Some, and possibly all, railroad operating officers have realized that this theory was not entirely correct, and that there was a possibility of producing a train load in excess of what could be justified by economical results. Most roads have had means of determining what their train load was with reasonable accuracy up to the time the trains move and a few have cost data but railroad officers have generally felt that when they were producing a satisfactory train load, that is, when their train load was approaching closely to 100 per cent of the potential rating of the engine, they were getting all of the economy out of their train operation that it was possible to produce.

Two or three weeks after the close of the month many operating officers have been greatly astonished to find that while they made magnificent train load performances their operating ratio had increased instead of decreasing, as they had expected. It is true that the operating ratio follows the train load for the most part; that an increased train load has the effect of reducing the operating ratio, and a decreased train load the effect of increasing it. But every operating officer has had experiences that show him that this is not always true.

With this thought in mind, I have tried for years to work

out a unit cost data of freight train operation that would give me a measure in money of the cost of operation immediately after the movement of the trains were completed.

In May, 1920, arrangements were completed to start compiling this data. It was realized it was going to take a great deal of effort to get the data sufficiently accurate that it would be dependable and also to get the division superintendent and his staff sufficiently interested in the data to make it valuable. With this end in view a very competent man was assigned to the work of installing these reports, following them up, checking them for accuracy and going over the performance with the superintendents picking out the bad units of operation and devising ways and means to correct them. It was found necessary to make some changes in the forms then in use in order to get the information in proper shape and from May until August was consumed in revising the forms and getting the reports nearly enough correct to be relied upon. By the first of August the reports were so nearly accurate that we began to apply them with some degree of assurance.

These reports are now prepared each day as soon as the train sheet for the day before is completed, and the superintendent has placed on his desk every day a full report for the day before by freight train districts, showing the performance of each freight or mixed train, including the cost per 100 gross ton miles and this data consolidated to show the average train load and cost per 100 gross ton miles, for each class of service by directions; also this information further consolidated for all classes and directions, as well as the amount of deadheading, penalty, called and not used, etc., for the freight district or sub-division. This is all consolidated in the car accountant's office into 7, 14 and 21 day and whole month reports, showing freight districts or subdivisions separately, as well as a division and system report. The unit of 100 gross tons per mile has been used in order to differentiate more closely between the performance of individual trains on the same district, in the same service and with the same power, carrying the cost to two decimal points. If it is desired to compare with a cost based on 1,000 gross ton miles it is of course only necessary to move the decimal point over one figure.

In August we had a peak load of business, with every train on the road handling its maximum tonnage. There was a minimum of light movements—practically none at all. In September and October business remained heavy. In November the business commenced to fall off considerably and it was more difficult to get a maximum train load. This condition became more marked steadily through November, December, January, February, and continuing into March; yet in spite of this fact we were able to reduce our cost for moving 100 gross tons one mile about one cent. The accompanying form is the only form we use for the daily report (except three small forms for gathering the information), and from which it will be seen that the wage cost for 100 gross ton miles is shown for every train run. For the last two or three months the accumulated figures from these daily reports have been so accurate that the variation from the operating sheet and the income account has only been about one per cent. On some divisions the variation has been less than half of one per cent, so that the report can be said to be absolutely accurate.

Its value lies in the fact that the report shows in a very condensed form the cost of operating each freight train, divided into classes, through freight, local freight and branch lines, so that the superintendent can compare the operation of the cost of the various trains at a glance and incidentally pick out the trains on which the cost is excessive and can determine the cause of the excess cost. These causes, of course, may be numerous, such as the overloading of the engine, bad train dispatching, bad performance of the engine, or any other of a number of causes, an analysis of which causes the superintendent to take steps to overcome these conditions and prevent a similar occurrence in the future.

Each superintendent very soon has fixed in his mind a certain figure of cost and when these reports come to his desk covering the previous day's operation, if the cost is higher than this figure he immediately starts looking for the reason and is able to locate instantly the train or trains that produced the higher cost.

When we first began to make real use of this report in August, a conference was held with the superintendents and they were told that they should reach a certain cost per hundred gross ton miles. This result was accomplished the first week in March, at which time they were commended for the result produced and a new figure set for them to strive to reach. The cost varies somewhat, of course, on different divisions, on account of different conditions, and a mark has been set for each division to work to. The superintendents are fully alive to the importance of this data and are using it more than they ever used any report of any kind that we have ever seen.

As stated, the reduced cost has been produced in the face of a condition that made the building up of a maximum train load absolutely impossible. Business was light and fluctuated and light miles were necessarily made, and, as a matter of fact, the train load showed a very marked falling off.

We have been able to determine almost definitely the exact point at which to fix the train load on different operating districts and a good many previous figures and ideas have been shown to be entirely inaccurate. In many cases we have produced a decreased cost by decreasing our train load. As an illustration, in a detail check made on one of our subdivisions, a period of four days was taken, as they were running. Then a reduction in tonnage of not to exceed 200 tons was authorized and the same check was made for second period of four days after the reduction was made effective, which resulted in a reduction in the average train haul of 46 tons, a decrease in cost of 0.5 cents per 100 gross ton miles, a saving based on the business handled during the second period of $472, an increase of 1,498 gross ton miles per crew hour, and an increase of 533 gross ton miles per engine hour (including time on roundhouse tracks). In other places we have produced the same result by increasing our train load.

As a further illustration, the average train load for the entire railroad for December, 1920, was 19 tons less than November, yet the cost per 100 gross ton miles was 0.12 cents less in December than November—a saving of $10,526.

The valuable part of the arrangement is that the superintendent knows immediately following the day's performance just what he did. He does not have to wait until the month is completed and then wait three or four weeks for the operating sheet and the income account to determine whether or not his operation was economical, but he knows each day what his operation was the day before, and can put his finger on the train or trains that caused any excess cost and can also figure out almost at a glance the trains that could have been operated more cheaply or economically.

With this report we are able to analyze the operation in a way that we never could prior to its installation. It had been the opinion of everyone that in order to get a report of this kind an enormous amount of detail work and accounting would be necessary and that the expense of it would make it prohibitive. The accuracy was seriously questioned. These theories have all been exploded. We are able to discontinue enough reports and data of one kind and another that we had been assembling before in an effort to analyze our train operation so that we did not have to add any cost at all in our division offices to prepare these reports. The only thing the report has cost us to date is the paper it has been printed on and the one man employed as an expert to work the system out and make it effective.

The difference in cost of moving 100 gross ton miles now and prior to using this report means a saving of more than

$75,000 per month on this railroad in wage costs for freight train operation. I believe that this result is due entirely to this cost data immediately at hand, and I am thoroughly convinced that we have not yet worked out all of the economy that can be secured by careful study and application.

But the most valuable part of it, as I see it, is that we have a cost item definitely worked out that will be of the greatest possible value in preventing an increase in unit costs, because we can so quickly detect any increase and locate it accurately and correctly, and that, of course, means that we can take steps immediately to overcome it.

Freight Car Loading

WASHINGTON, D. C.

OWING to the observance of the Fourth of July holiday there was a falling off of 135,110 in the number of cars loaded with revenue freight during the week ended on July 9 as compared with the previous week, according to reports compiled by the Car Service Division of the American Railway Association. The total for the week was 639,698 cars, a decrease of 156,493 cars as compared with the corresponding week last year and of 170,147 cars as compared with the corresponding week in 1919.

Reductions, compared with the week before, were reported in the loading of all commodities, the greatest being in merchandise and miscellaneous freight which includes manufactured products; coal and forest products. Because of the holiday in the week of July 9, however, comparisons with the preceding week in which there were six full working days are out of line.

The summary for the week of July 2 is tabulated below:

Decrease of Surplus Cars Continues

The gradual decrease in the number of surplus freight cars continued during the first eight days in July. The average was 369,525, a decrease of 4,266 cars as compared with the previous week. Surplus box cars totaled 145,112, a decrease of 1,186, due largely to a brisk demand for grain cars in the west where shortages have developed on several roads. There was also considerable demand for ventilated box cars owing to heavy loading of perishable products in the south. A further reduction of 931 in the number of surplus coal cars

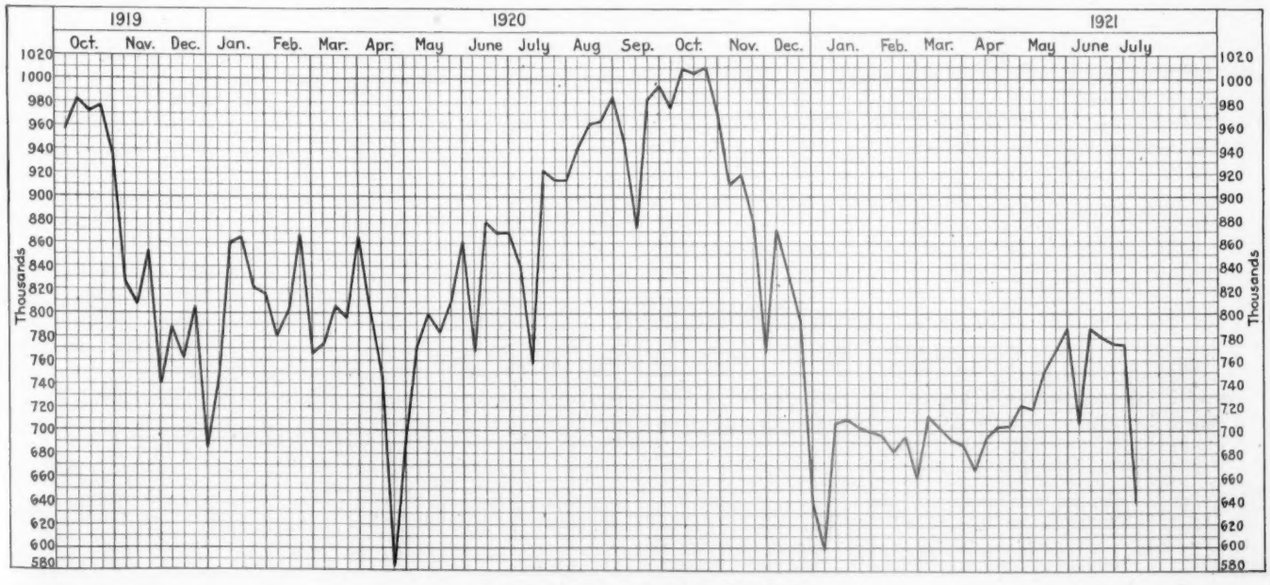
REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

Summary—All Districts, Comparison of Totals This Year, Last Year, Two Years Ago. For Week Ended Saturday, July 2d, 1921

Districts:	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Merchandise L.C.L.	Miscellaneous	Total revenue freight loaded: This year 1921	Corresponding year 1920	Corresponding year 1919	Received from connections: This year 1921	Corresponding year 1920	Corresponding year 1919
Eastern	1921	6,223	2,511	41,021	867	4,704	2,076	57,572	70,872	185,846			195,909		
	1920	5,850	2,798	56,089	2,283	7,944	7,705	24,635	110,963		218,267	176,888		254,200	218,918
Allegheny	1921	2,318	2,403	47,982	2,276	2,600	6,731	43,812	48,896	157,018			104,954		
	1920	2,277	2,849	50,343	4,858	3,355	10,120	36,663	61,608		172,073	149,916		119,978	127,215
Pocahontas	1921	120	116	24,773	12	1,318	14	2,339	5,237	33,929			13,543		
	1920	100	212	23,283	607	1,724	143	105	9,089		35,263	30,104		19,393	17,570
Southern	1921	3,047	1,667	20,471	384	14,991	481	37,394	34,653	113,088			60,517		
	1920	2,712	1,912	24,067	220	16,385	3,085	24,710	48,745		121,836	107,953		74,062	60,321
Northwestern	1921	10,356	7,199	5,687	490	12,586	19,659	28,888	33,204	118,049			42,720		
	1920	9,715	7,121	10,822	1,156	14,076	44,888	21,979	44,118		153,875	133,133		60,127	52,975
Central Western	1921	13,038	9,107	13,771	178	5,034	582	31,118	37,187	110,015			52,018		
	1920	9,538	9,930	21,813	440	5,265	5,084	32,758	43,444		128,272	97,093		72,026	62,784
Southwestern	1921	5,445	1,920	3,560	147	6,309	792	14,784	23,906	56,863			41,374		
	1920	3,859	2,241	6,617	93	6,916	647	16,801	24,861		62,035	48,139		52,146	44,813
Total, all roads	1921	40,547	24,923	157,265	4,354	47,542	30,335	215,887	253,955	774,808			511,035		
	1920	34,051	27,063	193,034	9,657	55,665	71,672	157,651	342,828		891,621			651,932	
	1919	27,504	23,981	154,934		53,784	63,389		419,634			743,226			584,596
Increase compared	1920	6,496						58,236							
Decrease compared	1920		2,140	35,769	5,303	8,123	41,337		88,873	116,813			140,897		
Increase compared	1919	13,043	942	2,331	4,354			215,887		31,582					
Decrease compared	1919					6,242	33,054		165,679				73,561		

L. C. L. Merchandise loading figures for 1921 and 1920 are not comparable as some roads are not able to separate their L. C. L. freight and miscellaneous of 1920. Add merchandise and miscellaneous columns to get a fair comparison.

June 25	1921	38,821	28,229	156,999	4,557	49,427	28,921	215,678	252,429	775,061	911,503	845,684	516,603	664,420	591,200
June 18	1921	40,994	28,541	157,243	5,102	50,472	28,866	215,622	253,901	780,741	916,736	807,907	514,358	675,443	574,895
June 11	1921	41,119	29,135	163,088	4,788	51,393	30,179	215,740	253,555	788,997	930,976	807,205	509,129	681,514	563,838
June 4	1921	41,394	24,039	142,674	4,642	48,227	28,311	195,246	221,975	706,508	828,907	776,610	480,162	657,709	524,731



Curve of Revenue Car Loading

Week ending July 9, 1921	639,698	Week ending July 9, 1920	796,191
Week ending July 2, 1921	774,808	Week ending July 9, 1919	809,845

was also reported, the total on June 8 being 161,606 compared with 162,537 on June 30. Coke cars in excess of current requirements increased nearly 120 during that period to a total of 11,643. Greater demand for stock cars reduced the total for that class of equipment to 17,221, or about 950 cars below what it was at the end of last month. Small reductions in a number of other classes of cars were also reported.

Bad Order Cars July 1, Total 15.4 Per Cent

The number of bad order freight cars, however, continues to increase. The report for July 1 shows a total of 354,611, or 15.4 per cent, as compared with 15.1 per cent on June 15, while the percentage of bad order box cars was 17.4 as compared with 17.1 and of gondola cars 14.1 as compared with 13.7. Of all freight cars, 88,224 or 3.8 per cent, required light repairs and 266,387, or 11.6 per cent, required heavy repairs, while of the box cars 4 per cent required light repairs and 13.4 per cent heavy repairs. Not only is the percentage of bad order cars much greater than a year ago, but the proportion requiring heavy repairs is larger.

Tentative Valuations Issued

THE Interstate Commerce Commission has issued a number of additional tentative valuations.

Toledo, St. Louis & Western

In the case of the Toledo, St. Louis & Western the commission finds a final value as of June 30, 1916, of $17,282,997 for the property owned and $17,326,253 for the property used, which includes a small amount leased from other companies. The total track mileage covered is 625 miles. The final value found is very much less than the total capitalization or investment account. The outstanding capitalization on the date of valuation was $48,412,413 and the investment in road and equipment as readjusted is stated as $39,339,257, which includes $35,500,000 face value of securities issued by the carrier in accordance with the reorganization plan of the Toledo, St. Louis & Kansas City less net cash receipts from the reorganization committee and plus expenditures for improvements and additions. The original cost, the report says, cannot be ascertained and figures are given for only a small part of the property. The cost of reproduction new and the cost of reproduction less depreciation of common carrier property other than land are given as $16,742,614 and $12,980,050, respectively.

Ann Arbor

In the case of the Ann Arbor, the commission places the final value as of June 30, 1915, as $11,127,277 for the property used, a total of 420 miles of track. The total capitalization outstanding at the valuation date was $17,271,538. The cost of reproduction new of the common carrier property other than land is given as $4,056,034, the cost of reproduction less depreciation as $3,038,625.

Chicago, Milwaukee & Gary

The Chicago, Milwaukee & Gary is given a final value as of June 30, 1915, of $2,889,974, which covered 99 miles owned. The report says that the funds provided for the initial construction amounted to something less than $3,380,000, while the total capitalization outstanding on the valuation date was $13,093,187. No dividends have ever been paid on the stock and no interest has ever been paid or even accrued in the accounts on the first mortgage bonds. The original cost to date is found to be an indeterminable amount in cash within a maximum of $3,694,357. The cost of reproduction new other than land is given as $2,609,678 and the cost of reproduction less depreciation as $2,086,718.

Trinity & Brazos Valley

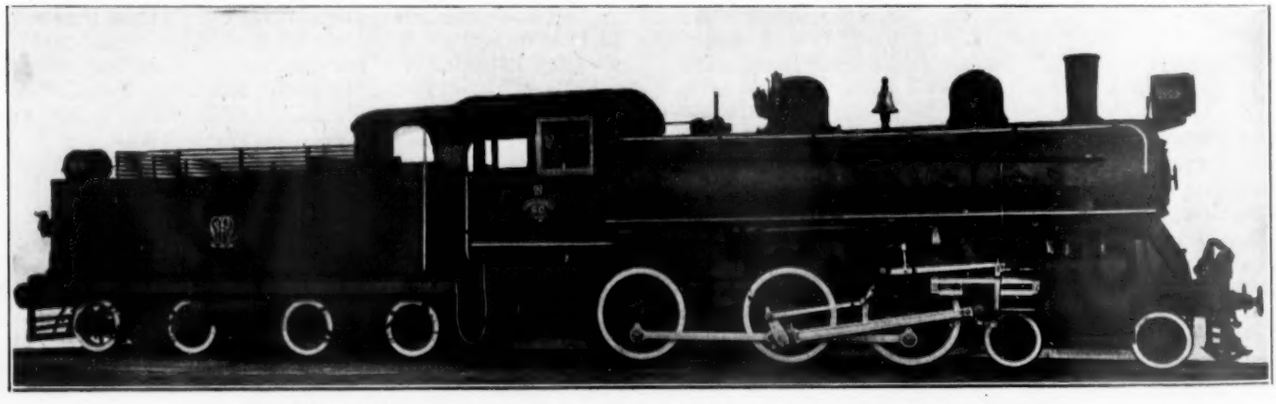
For the Trinity & Brazos Valley the commission states the final value as of 1916 as $9,064,566; the capitalization was $17,531,645, the book investment $11,467,726 and the original cost approximately $9,889,581 in money and $1,518,338 in securities. The cost of reproduction new is given as $10,528,526 and the cost of reproduction less depreciation as $8,043,452.

St. Louis Southwestern of Texas

In the case of the St. Louis Southwestern of Texas, which on June 30, 1915, owned 897 miles of tracks and used 1,019 miles, the commission found a final value of $23,831,840 for the property owned and $26,029,939 for the property used. The capitalization as of the valuation date was $27,590,936. The report says the original cost cannot be ascertained but the maximum expenditure of the company and its predecessors in creating and improving the property was $21,685,529. The cost of reproduction new of the carrier property other than land was given as $28,156,973 and the cost less depreciation as $21,352,005, while the present value of the carrier land was reported as $2,458,778.

The commission has also reported tentative values of a number of smaller roads in which the final value of the property used is given as follows:

Lithonia & Arabia	1916	$51,858
Milstead	1916	31,924
Blaney & Southern	1916	56,000
Sunset	1916	1,468,226
Timpson & Henderson	1917	392,643
Gulf Texas & Western	1917	1,667,771
White River	1917	392,223
South Manchester	1916	184,425
Montana Western	1915	186,500
Peoria Railway Terminal	1916	1,126,355
Mount Hood	1916	507,463
Gideon & North Island	1917	130,906
Garden City Western	1916	192,099
Washington & Choctaw	1915	147,685
Sardis & Delta	1916	116,000



Ten-Wheeled Locomotive Built by the H. K. Porter Co. for the Manila Railroad

A duplicate order for 10 locomotives of this type was shipped recently. The equipment includes vacuum brakes and electric headlights.

Reduction of Live Stock Rates Proposed

Interstate Commerce Commission Examiner in Report Recommends Readjustment to Aid Farmer

WASHINGTON, D. C.

ORAL ARGUMENTS were heard by the Interstate Commerce Commission at Washington on July 15 on the first important complaint asking a reduction of rates increased by the commission's order in Ex Parte 74 that was filed with the commission following that advance. The case is that of the National Live Stock Shippers' League and other live stock interests against the western railroads and the proceeding was expedited by the commission so that the argument was held on the day following the issuance of a proposed report in the case by Attorney Examiner Disque, who recommended to the commission a finding that the rates for the interstate transportation of ordinary live stock in carloads in the Western and Mountain-Pacific groups in the aggregate are not excessive from a strictly transportation standpoint, but are unreasonable from an economic standpoint and that the carriers should favorably consider the making of substantial reductions in those rates for the benefit of the live stock industry and business generally. Mr. Disque found that, judged by the usually recognized standards employed in rate cases, the live stock rates are relatively low for the service performed, but he recommended a reduction of the rates in the two western groups by the amount of the increase put in effect last August, which was 25 per cent in the Mountain-Pacific group, 35 per cent in the Western group and 33⅓ per cent on inter-territorial traffic. This was strenuously opposed at the argument by the attorneys for the roads.

The complaint asked for a blanket reduction in the live stock rates on the ground that it was impossible for the live stock industry to thrive under the present rates and that they injure business generally. The rate making authorities of several states intervened as complainants and the commission was asked to eliminate both the increase of 25 per cent with a maximum of 7 cents per 100 pounds or $15 per car, made by the Railroad Administration under General Order 28, and the increase ordered by the commission in Ex Parte 74. For the most part the important live stock rates in the West had been fixed by the commission before these advances were applied.

Live Stock Industry in Serious Condition

The report discusses in detail the situation of the live stock industry, pointing out that the market prices are determined largely by the law of supply and demand and that the proceeds of the farmer are based on the price at the market less transportation and marketing charges. "The record establishes," Mr. Disque said, "that the live stock industry is in a very serious condition. Millions of dollars have been lost within the past year or so because of the rapid and severe decline in market prices of live stock. When the live stock industry is in a depressed state the whole section of the country is depressed." For hauls up to 400 or 500 miles, he said, the increases under General Order 28 and Ex Parte 74 resulted in rates about 68 per cent higher than those in effect before the war. For greater hauls the increase was less severe, but in general exceeds 50 per cent.

"The market prices of live stock are near the pre-war levels and the indications are that as a general rule the live stock grower at best is not receiving and will not receive," the report said, "if present producing and marketing costs and selling prices continue, anything more than a nominal return over and above the out of pocket costs, to say nothing of interest on investment and an allowance representing a salary for the farm or ranch owner-manager. The present relatively low price may be due largely to a possible oversupply on the market.

"The present rates discourage and to an extent actually prevent the free interchange of cattle among ranchmen, thus reducing railroad traffic. Future traffic is also threatened. Many have discontinued the raising of live stock and many more are expecting to do so. Freight charges are the only item aside from commission charges which is at its peak."

The complainants pointed out, the report says, that the value of live stock is far below what it was when Ex Parte 74 was heard and that the value of the commodity is one of the important considerations in rate making. The reduction in rates is not sought on the ground that it would substantially increase the present movement but on the theory that it would stimulate the industry, help save it from ruin and preserve it as a future and continuing source of traffic for the carriers. The desired benefit to the industry might be accomplished if substantially increased prices for live stock could wisely be fixed by law, the examiner said. Possibly when the present period of liquidation has spent itself and production is reduced higher prices will come about naturally.

The Railroad Point of View

"The railroad situation is a matter of common knowledge," the report continued, "and need not be considered here. Suffice it to say that the evidence is calculated to establish that the carriers, like the live stock industry, are in a bad way and that they are in no position to make extensive reductions in rates. The defendants roughly estimate that on the basis of 1919 traffic the reduction sought would cost them about $34,000,000. Complainants perhaps would have us regard this amount as defendants' just contribution toward an early return to normal conditions. If only the Ex Parte 74 increases were taken off the loss would be about $22,500,000. The carriers say that if there is any commodity which should be excepted from a reduction, it is live stock. They have offered what they regard as the most comprehensive and convincing evidence ever submitted in a live stock case. That the rates in the aggregate are not excessive from a strictly transportation standpoint is so abundantly shown that it is not deemed necessary to do more than state the ultimate facts. The evidence establishes beyond and question of doubt that the present rates contribute to the revenues of the carriers in less proportion than do most other commodities of importance. In other words, judging them by the usually recognized standards employed in rate cases, they are relatively low for the service performed. Live stock rates have not been increased as much in the last 10 years as most other rates. On account of the light loading the car mile earnings are far below what they are on most other important commodities. We have no hesitation in saying that our judgment is that they should be substantially reduced to assist in tiding the live stock industry over its present period of adversity and to hasten the return of normal conditions. In other words, it is our view that the rates are unreasonable from an economic standpoint.

"It is not every line of business that would be materially helped by a reduction in freight rates but here is one which would be. It is our view that in the long run a substantial reduction would redound to their (the carriers') advantage.

"The defendants fear that if they make reductions on one commodity the same thing will be demanded on many others and that if they yield most of them will be shortly found in bankruptcy. We cannot believe, however, that the country will allow such a thing to come to pass as a general condition of receivership. We think the carriers in the public interest should favorably consider the matter of eliminating for the most part, temporarily at least and especially for longer hauls, the increases in live stock rates made following Ex Parte 74. This exception is not to be taken as any indication of what course we may pursue as to some other commodity. A reduction in rates on traffic in general seems unwarranted at this time and in our view no adequately compensating benefit would be thus achieved. However, the rates on certain commodities are stifling industry and should be reduced. If the carriers cannot live on rates that will permit industry to thrive, special measures may have to be adopted to maintain and preserve the efficiency of our transportation system."

Argument on Behalf of Railroads

Kenneth W. Burgess, arguing in behalf of the railroads, said that the present condition of the livestock industry is due entirely to economic factors other than freight rates and that a reduction in freight rates will not relieve the situation. To illustrate this he showed that while the deflation in the farm values of live stock in the western district in 1920 was $819,660,288 the freight rate increase made last year was only $7,488,356 or less than 1 per cent of the decrease in values, the advance having been in effect for four months. The present value of the western live stock at the market is $2,419,200,000 and the entire reduction in freight rates asked, $34,000,000, is only 1.2 per cent of the value, while the reduction proposed by Examiner Disque is less than 1 per cent. He also showed that the value of a car of livestock at the market is $1,800 to $2,000 a car, while the average freight rate in the western district is $66 a car. These figures illustrate in a general way, he said, the fallacy of charging the commission with causing the deflation in the value of live stock or Congress with dereliction of duty in passing the transportation act.

No general rate reduction is possible at this time in the western district, he continued, and live stock cannot be singled out for a rate reduction at this time in the light of the circumstances and conditions of transportation which are attendant upon it. Under the law as defined by the courts and the commission rates on one class of traffic cannot be decreased so as to throw a burden on other classes of traffic. Upon the facts of record it appears, Mr. Burgess argued, that this result would follow if live stock rates are reduced. The courts have frequently held, Mr. Burgess said, that the reasonableness of a freight rate does not depend upon whether the customers of the railroads are making money in their business and the examiner in his report has undertaken to set up a new test of the reasonableness of a rate, the economic reasonableness, unknown to the law, without giving any measure to tell what would be reasonable.

Commissioner Campbell asked if he contended that the commission should keep on raising rates in an effort to make them produce 6 per cent. Mr. Burgess said that he would not make any such contention but that in this case it is not claimed that the reduction of the rates would even stimulate traffic. It is claimed that live stock has been moving merely because it was necessary for the producers to realize cash. The western railroads have been earning only at the rate of 2.87 per cent.

Mr. Burgess went into a detailed discussion of the causes for the deflation in live stock prices to show that a reduction in freight rates would not result in any material or permanent benefit to the industry and concluded by saying that if the commission should find, as the examiner has found, that the rates are reasonable from a transportation standpoint, he challenged its jurisdiction to reduce the rates.

Argument of Shippers

S. H. Cowan and Clifford Thorne, representing the live stock shippers, and J. E. Benton, representing the state commissions that have intervened in the case, emphasized the argument that the commission can reduce rates on a single class of traffic on the ground of their inherent unreasonableness regardless of whether the rates as a whole are producing the return prescribed in the law and upon the superiority of the rights of the public to ship on reasonable terms from the standpoint of the shipper, to the rights of the stockholders. Mr. Thorne and Mr. Cowan also objected strenuously to the finding of the examiner that the live stock rates are reasonable from the transportation standpoint and that rates generally can not be reduced, saying that such findings are unnecessary in this case and may cause trouble in the future. They also referred at length to exhibits used in previous live stock rate cases which they claimed demonstrated that live stock rates are remunerative as compared with the rates on other commodities when compared on the basis of net ton miles rather than on car mile earnings.

Mr. Cowan said that the reduction is asked so that the live stock industry may prosper so that the railroads may prosper because the prosperity of the railroads depends in great measure on that of the live stock industry. The business now is paralyzed, he said, and the shippers did not even have the money to prepare an abstract of testimony in this case. It is not contended that the railroads are wholly responsible for the condition, he said, or that the western roads are earning the return prescribed by the law, but that the commission is empowered to make rates which are fair and reasonable in the circumstances, which means rates that will enable the industry to live. He denied that the live stock traffic costs more per net ton mile than other traffic, saying it is the most desirable traffic in the west that moves in volume.

Senator Kendrick of Wyoming, who is president of the American National Live Stock Association, also made a statement to the commission, describing the serious condition of the live stock industry and arguing that a reasonable freight rate must be one that is reasonable to the shippers. He said the last increase in rates had more to do with discouraging those who were financing the live stock producers than any other factor and seemed to have brought them to the conclusions that the business could not be made successful. He said that reduction is asked on traffic which must be moved whether the rates are reduced or not because the cash must be realized from it and he urged expedition in deciding the case because the heaviest movement will be early in August. Senator Kendrick declared that the freight rate represents 25 per cent of the net return from live stock and that the reduction asked would not enable the producer to realize the cost of production but would merely reduce his losses.

Clifford Thorne answered Mr. Burgess' figures by saying that the condition of the industry is the result of many factors which collectively are of large importance and that one of the largest factors in the list is the freight rate burden. Chairman Clark asked whether there is anything in the record to show whether the producer of live stock would get the benefit of a reduction in rates. Mr. Cowan interjected that the farmer gets the price at the market less the freight rate and Mr. Thorne added that anything that reduces the cost of shipping is important and it is up to the shipper to see that he gets the advantage of it.

THE RULE REQUIRING all engineers and conductors on the Atchison, Topeka & Santa Fe to have standard watches, has been extended so that it includes all firemen, brakemen, switchmen and train porters of the system.

Locomotives of American Design for Use in Spain

Pacific Type Handles Heavy Express Trains on Madrid, Zaragoza & Alicante with High Efficiency

THE Madrid, Zaragoza & Alicante is one of the two large railroad systems in Spain. Having 2,267 miles of line, it constitutes about 25 per cent of the total railroad mileage in the kingdom, which is 9,610. The road is of 5 ft. 6 in. gage, this being the standard used on 75 per cent of the mileage in the country, the balance being meter gage. The road operates three main lines out of Madrid, the first running easterly through Zaragoza to Barcelona and along the coast to the French border, the second southeasterly to Alicante with a branch to Cartagena, and the third southerly and westerly to Cordoba and Seville. The rolling stock consists of 879 locomotives, 1,643 passenger coaches and 20,964 freight cars.

American built locomotives of the balanced compound 12-wheel type have been in operation on the Madrid, Zaragoza & Alicante for several years, but they were constructed from drawings furnished by the railroad and were duplicates of previous locomotives used on the road which were built in Germany. A full description of these engines was given in the *Railway Age*, April 13, 1917.

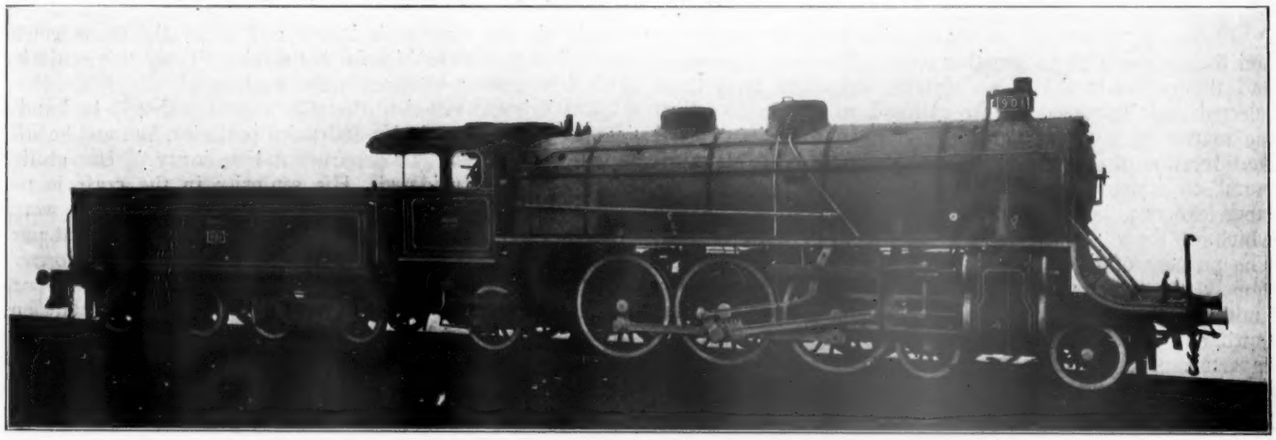
In May, 1920, the Madrid, Zaragoza & Alicante placed an order with the American Locomotive Company for 15 passenger locomotives of the Pacific, or 4-6-2 type, to be built in accordance with American designs. They were completed in 100 days after the signing of the contract, but shipment was delayed on account of the protracted strike of the longshoremen. They were finally received at Alicante early in September, erected at the roundhouse at that point and placed in service on express passenger and mail runs from Madrid to Barcelona, Santa Cruz, Alicante and Cordoba. As these new locomotives, numbers 901 to 915, are used in the same service as the earlier 12-wheel locomotives of the 1,300 class, the following information which has just been received from E. Maristany, superintendent of motive power, relating to their performance after they have been in service for several months, is of particular interest.

The service requirements specified were the handling of 280 tons back of the tender at a speed of 31 miles an hour on 1.5 per cent grades and curves of 1,312 ft. radius, 310 tons at a speed of 37.3 miles an hour on 1 per cent grades and curves of 1,312 ft. radius and 400 tons at a speed of 62.1 miles an hour on level track and curves of 2,297 ft. radius.

These Pacific type locomotives conform as closely as possible to American practice. They are, however, equipped with copper fireboxes and staybolts and screw reverse gear. Automatic vacuum brakes are used for the driving wheels and on the tender, with auxiliary hand brakes on the tender.

The superheater is designed to raise the temperature of the steam to 725 deg. F., or 350 deg. above that of saturated steam. This extremely high temperature requires the use of special oil and a great amount of care on the part of the enginemen. Due to lack of experience with steam of such high temperature, several of the valves were scratched during the first two months of service, but no trouble has been experienced recently.

Despite the fact that so many details of construction conformed to American practice and were therefore new on the road, the men soon became familiar with these engines and now handle them as perfectly as the older types of locomotives. Although the Pacific type locomotives are of smaller power than the older 12-wheel type, they are satisfactorily handling the same loads, run easily at the fastest speeds allowed and if delayed are usually able to make up lost time.



American Design of Locomotive Giving Good Service in Spain

The arrangement of the trucks and the disposition of the suspension permits running at high speed without trouble from journal heating.

The workmanship on these locomotives has received very favorable comments and refutes the opinion frequently held in Europe that American workmanship is of a low grade. Due to the results thus far obtained, the impression made by these locomotives is a very favorable one. In two or three years when they are taken in for heavy repairs, it is hoped that a comparative report can be obtained between the cost of repairs on these locomotives and other locomotives of European design.

At the present time economy of operation is of vital importance in Spain as well as in other parts of the world as the coal now available on the Spanish roads is not only of a lower grade than that formerly obtained, but the cost is two or three times as much per ton as it was before the war. During the month of April, 1921, the average total mileage made by the fifteen engines was 3,510 with an average coal consumption of 71.5 lb. per train mile, while the amount of oil used per mile was 0.12 pint, or 8.3 miles per pint of oil. In coal and oil consumption the results obtained with these

engines compare very favorably with that of the most economical locomotives on the road.

The general dimensions and the weights of the locomotives are given in the accompanying tabulation.

Tractive effort (85 per cent of working steam pressure)	28,830 lb.
Gage	5 ft. 6 in.
Cylinders	23 in. by 26 in.
Boiler:	
Diameter	65 in.
Length between sheets	19 ft.
Working pressure	170 lb.
Grate area	45.3 sq. ft.
Tubes	28—5⅜ in.
Flues	148—2 in.
Heating surface, firebox	143 sq. ft.
Heating surface, arch tubes	13 sq. ft.
Heating surface, tubes	1,305 sq. ft.
Heating surface, total	1,461 sq. ft.
Heating surface, superheating	705 sq. ft.
Wheels:	
Driving	69 in.
Truck, front	38½ in.
Truck, trailing	45⅜ in.
Weights:	
On driving wheels	105,800 lb.
Engine light	169,000 lb.
Engine in working order	188,500 lb.
Engine and tender in working order	293,500 lb.
Tender:	
Water capacity	717 cu. ft., 9,600 U. S. Gals.
Fuel capacity	5½ tons

Labor's Bill of Rights and the Seniority Rule

By L. E. Gardner

MR. JEWELL in setting forth labor's "Bill of Rights," said the reason for so doing was to show to the Labor Board "how easy" it would have been for employees and the railroads to get together on the National Agreement had the railroads shown a "sincere desire" to meet those selected and instructed by the railroad employees to adjust the matter of national agreements. Even the most casual consideration of the "eleven points" of the "irreducible minimum" on which labor would have an agreement, shows the labor leaders to be begging the question. It is difficult to say which of these "eleven points" is the most objectionable. The purpose of this article is to discuss only one of them, namely, the tenth, which demands: "Craft, point seniority, limiting seniority to the local shops or points, and not permitting interchange of seniority with other shops, crafts, or departments of railroads."

It does not seem that "those selected" by railroad employees to adjust this matter are acting in the best interests of railroad employees in asking for any such disastrous rule, or that in doing so, they really voice the wishes of the employees as a whole. Under present working conditions, many employees do not have an opportunity, or at least do not see fit to exercise the opportunity of expressing their real convictions. A closed shop is closed in more ways than one.

This rule not only places the emphasis on seniority instead of on ability, but does not even make mention of the ability or fitness of the employee. Seniority alone is to be considered. Such a rule might benefit the incompetent workman who had no qualification other than seniority by which to win promotion, but would have a very discouraging effect on the success of any worthy or ambitious workman. No matter what the workman's natural talent, or his special fitness for the job in question, or the training he had received in preparation for just such work, he could not hope for the job so long as anyone else wanted it who happened to have more seniority than he. And just what is this talisman of "seniority," this "open sesame" to all job preferment? It isn't a question of the man's fitness or faithfulness, or even of his length of service. But one of "craft, point, departmental seniority." Let us consider each of these three phases of this rule.

First craft seniority: nothing that the workman ever did before becoming a member of the craft is to be considered. If he spent four years in an apprenticeship preparing for service in that craft he may have less seniority than the so-called McAdoo mechanic, who was made a mechanic over night, by a stroke of a pen, and happened to become a member of the craft the day before the young apprentice completed his four year course, even though the date the latter completed his course may have been delayed by two years or more spent overseas in his nation's service. The handyman's seniority dates from the day he began doing mechanic's work, but not so with the apprentice. He has absolutely no seniority until he begins drawing full mechanic's pay, and even then he has no more seniority with the employer for whom he has worked these several years than in a shop in which he had never entered. So much for "craft" seniority.

But even after becoming a member of the craft, and having craft seniority his chances of success and advancement are further limited by "point seniority," which in brief stipulates that nothing the workman ever did at any other locality is to be of any avail to him. He may have been broadened and developed by experience in some of the best shops in the country, or may have given a lifetime of efficient and faithful service to this same employer, but possibly his own health or the health of some member of his family, may have made it necessary to move to some other section of the country and to seek employment in another shop of this same company. Should this be necessary, he finds to his sorrow that in the choice of work and in times of reduction, he has less "point seniority" than the most incompetent boomer who happened to light in that shop a day ahead of him. Though he has given his former employer good and faithful service, this rule would tie the company's hands and make the management powerless to reward him for his service. Truly this seniority rule is a great protection to the workman.

But it is not sufficient that the workman should be handicapped by craft seniority and point seniority, he must be still further restricted by "departmental seniority." His ability is not to be considered. His seniority in the craft is not sufficient, his years of service with the company is worth nothing, not even his service with the company at that particular point, unless he also has "departmental seniority." Any fellow workman, who happened to start in that particular department ahead of him, no matter how inefficient or unworthy, would have seniority rights over him as to choice of jobs and as to being retained in service in times of reduction. If the man accepts work in a small department he limits his chance for advancement. The man in a large department finds that once he loses a desirable position, he must start again at the very bottom in a class of work not only very distasteful to him, but work for which he is really not fitted. For instance, if a skilled cabinet maker or inside finisher suffers a break in his service, for any reason whatever, voluntary or otherwise, he cannot ask for similar employment with his former employer, nor even on any other railroad in the country, but can only ask for the least desirable job in the freight car department. In this as in other cases, nothing is of any value but the "technical seniority," the conditions of which he cannot always foresee, as many workmen have recently learned to their sorrow.

During these recent reductions in forces, the management would have gladly rewarded many of these men for their faithful service, and would have found some way in which to take care of them, but no, they must follow a rule the conditions of which are such that not only is no guarantee made for merit of any kind, but the employer is even denied the opportunity of giving any consideration to a worthy employee not given to the most worthless and unworthy of those able to get by. And yet labor leaders include such a rule in the "irreducible minimum" on which they would make an agreement, and in doing so claim they are acting in the best interests of the men they are supposed to represent.

But the frequent injustice to the workman himself is not

the worst of it. Railroad men are human beings, endowed with the desire for self betterment and service to others. Like all normal individuals, as a whole, they at heart believe in reward of merit; they know that some men are more capable than others, that some men are adapted to the work they are doing while others are industrial misfits; that some make the most of their opportunities while others fail to do so. While they and their employers feel that old and faithful employees should be rewarded for the service rendered, they realize, too, that the quality and quantity of work done by the individual employee should receive its own reward. Imagine the effect, if you please, on a competent, energetic workman seeing an ignorant, incompetent, slow and lazy fellow-workman given preference over him in choice of work or other favors in the shop. If this happens not once, not twice, but scores and scores of times, what effect is it bound to have on his efficiency and ambition, his feeling toward his employer and toward his fellow-workmen. If such a condition should continue day in and day out, year after year, what would be the result in a decade or a generation? What would be the quality and quantity of work turned out by a body of workmen from whom all incentive to individual effort had been removed? What would be the earning power and consequent income of this same body of workmen, what their feeling toward each other, what their respect for themselves?

Let us view this obnoxious seniority rule from a different angle, from the viewpoint of the output of the shop, in case the management has nothing to say as to the placement of the men. If all jobs must be bulletined, if from the foreman is taken the right to place his men in work for which they are fitted, and where they will work as a whole to the best advantage, if his men know that he had nothing to say as to their present assignment of work and will have nothing to say about such assignments in the future, what will be the effect on shop discipline, what the effect on the immediate and the ultimate output of the shop? Where is teamwork going to come in? How is the work of the various jobs going to be co-ordinated and the whole body of workmen formulated into an efficient working unit? What would have been our chance of defeating the Germans had our army been organized in such a manner, and the various positions filled, and men detailed for special duty merely on the basis of seniority alone?

If the shop management is to have nothing to say as to placement of men, and to have no opportunity for rewarding merit, but must bulletin each job, shut its eyes and take what comes, what will be the inevitable result, either in present output or future progress and efficiency? If this arrangement is to be continued in the assignment of work to the definite craft, would it also be extended to foremanship and other leaders? In short, would the oldest man in the shop be made superintendent, the oldest man in the state be made governor, and the oldest man in the nation be made president? These illustrations sound ridiculous, but they serve to show the ridiculousness of the seniority demands.

Under the individual effort system, by which is meant any system which recognizes effort and ability, men are not promoted, they promote themselves. It is just as natural for some men to rise to the top and others to go to the bottom, as it is for material objects to obey the laws of gravitation. There may occasionally be a few instances where men of ability are temporarily passed over by favors shown men with a pull, but such cases are rare and are daily becoming more so. Even from a purely selfish point of view, a foreman or other official is not going to injure his own success and chance of advancement by tying about his neck a lot of dead weight in poor subordinate assistants. Even if a sense of fairness and justice would not influence him, his own interests in the matter would result in his rewarding those of his men who show most ability and fitness.

As the individual workman increases his efficiency and usefulness, so will the usefulness and prosperity of the workmen as a whole increase. As output is increased and the company's earnings increase, the cost of transportation will be lowered and the public correspondingly benefited. This question is a most serious one and is of direct concern not only to the railway employees and railway managements but to the public as well. In brief we might as well expect the race to be won by the oldest horse on the track as to expect to win out in the present industrial struggle with a system recognizing length of service alone, with no regard for merit or fitness.

Chesapeake & Ohio Wants to Unify Properties

WASHINGTON, D. C.

THE CHESAPEAKE & OHIO has filed an application with the Interstate Commerce Commission (noted briefly in the Railway Financial News Column) for authority for the conveyance to it of the property of the Chesapeake & Ohio Northern, which indicates that the provisions of the Transportation Act interpose numerous technicalities in the way of a consolidation of the properties of a railroad system in advance of the publication by the commission of its tentative plan for a general consolidation of the railroads into a limited number of systems.

It has been the policy of the Chesapeake & Ohio to unite the properties of its various subsidiaries with its own property by deeds of conveyance from time to time, but in order to carry out this policy in the case of the Chesapeake & Ohio Northern, which in part connects its line with that of the Hocking Valley, it has asked for authority under three separate provisions of the act.

In the first place it applies for a certificate that public convenience and necessity require the operation by the Chesapeake & Ohio of the Chesapeake & Ohio Northern and permitting the abandonment by the Northern of its line coincident with the assumption of operation by the Chesapeake & Ohio. Application is also made for an order approving and authorizing the acquisition of control through conveyance to the Chesapeake & Ohio of the rights, properties and franchises of the Northern company, or for authority to assume direct liability for the bonds of the latter. The Chesapeake & Ohio built the Northern line under the name of a separate company of which it owns the stocks and bonds and the application states that the properties are now and always have been operated as parts of a single system under one management and are in substance commonly owned. The application is made under the provisions of section 1, paragraphs 18 to 22 and section 5 paragraph 2, either or both, and under section 20a of the interstate commerce act, but not under section 5, paragraph 6, which provides for the consolidation in one corporation of properties in separate ownership.

The paragraphs referred to in section 1 are those which provide for the issuance of certificates authorizing the construction or acquisition of extensions or the abandonment of existing lines, but the commission has held in several recent finance cases that paragraph 18 does not apply in the case of a railroad which was in operation in interstate commerce prior to its effective date last year. Section 5, paragraph 2, under which application is also made, authorizes the commission to approve the acquisition by one carrier of the control of another carrier either under a lease or by the purchase of stock "or in any other manner not involving the consolidation of such carriers into a single system for ownership and operation," while Section 5, paragraphs 4 to 6, provide for consolidations but only in case they are in harmony with and in furtherance of the complete plan of consolidation mentioned in paragraph 5 on which the commission is now work-

ing with the assistance of Professor W. Z. Ripley of Harvard University.

The application of the Chesapeake & Ohio says the object is to acquire by purchase and operate the property of the Northern company. Applicant is advised that Section 10 of the Clayton law is susceptible of a construction which may have a serious effect on the heretofore efficient and economical operation of these properties as a single railroad system because of the restrictions thrown around dealings between companies having common officers and directors, and it is stated that the steps taken by the applicant to meet the technical difficulties arising from this construction of the act are proving very expensive and otherwise embarrassing. The effect of granting the application, it says, will be to change an equitable into a legal title to the property and a guaranty into a principal and in addition to effecting accounting and other economies will result in the restoration of efficient operation impaired by Section 10 of the Clayton Act.

"No Exception Month" on the Illinois Central

DURING THE PERIOD of federal control very satisfactory results were obtained in reducing the number of casualties to employees by means of "no accident" or "safety first" campaigns. With this past experience in mind, officers of the Illinois Central were of the opinion that a similar campaign, to be known as "No Exception Month," might obtain worthwhile reductions in the number of loss and damage claims on their road. The plan seemed so feasible that the month of April, 1921, was set aside for the campaign, which was to be known as "No Exception Month," and which had for its immediate purpose the reduction of exception reports. with their subsequent claims. The general method chosen for accomplishing this end was to enlist the cooperation of employees in a general effort to handle more carefully all freight delivered to the road for transportation, so as to insure its reaching its destination in the same good condition in which it had been received, thereby obviating the necessity for exceptions of any kind.

It was decided that the territory to be included in this "no exception campaign" should embrace all lines of the Illinois Central south of the Ohio river, consisting of the two so-called grand divisions, the Illinois Central Southern lines and the Yazoo & Mississippi Valley, a total of seven divisions.

Campaign Well Advertised

General superintendents and superintendents were notified two weeks in advance of the campaign in order that they, in turn, could issue preliminary instructions to all supervising officers and agents To further insure the success of "No Exception Month," supervising agents from each division were called together at Memphis, Tenn., where a uniform program was discussed and adopted for the use of all agents and their forces. An outline of this plan which, it is believed, was largely responsible for the extraordinary success of the campaign, follows:

1. Notices, fully outlining the campaign, were sent out to all agents, trainmasters, master mechanics, roadmasters, yardmasters and local freight conductors.
2. Supervisory forces conducted a personal campaign among the employees of every department.
3. Meetings were held at all the larger stations at which the agents could instruct both their office and platform organizations.
4. Platform foremen held ten minute meetings daily with their forces.
5. Agents and foremen at the principal stations were required to ride local freight trains frequently during the campaign to check up any bad practices in the handling of freight which might come under their observation.
6. All foremen in charge of transferring and repairing carload shipments were made familiar with the details of the campaign and were impressed with the importance not only of transferring all lading carefully, but also of using the utmost care in selecting the cars to be used.
7. Agents at the larger stations were urged to inform shippers of the campaign and to solicit their co-operation.
8. Inspectors from the department of the superintendent of stations and transfers were assigned to each division one week before the inauguration of the campaign. They were to co-operate with the superintendents, supervising agents and other division officers in making the campaign a success, and were free to handle any details which might be assigned them after conference with the division staffs.
9. On the last day of March, 1921, superintendents sent notices to all heads of departments on their division, calling their attention to the fact that the campaign was to become effective on the following day, and issuing instructions that the employees should be called together before going to work to be impressed with the importance of giving close attention to the proper handling of all carload and l. c. l. shipments, and otherwise making every effort toward success in the campaign.

Excellent Results Obtained

The exception reports received as the result of improper handling of freight during this period were tabulated daily, being charged to the station and division responsible for them. Report was made by telegraph daily to the general superintendents of the number of exceptions received against each division and larger station, together with the total to date.

In addition to the general "no exception campaign" a special effort was made to reduce exceptions resulting from bad order equipment. As a result of this effort, these exceptions, which had totaled 1269 on the two grand divisions in March, were reduced to 364 in April, a reduction of 905 or 71 per cent. This was accomplished largely by interesting the stowmen in the proper loading of freight, by instructing yard and train officers in methods of careful handling, and by bulkheading "through destination cars." As an example of this latter remedy, there were 105 bad order exceptions reported on outbound freight from Louisville, Ky., during March, and this number was reduced to 20 in April, solely by bulkheading merchandise cars. A test showed that of 127 cars bulkheaded only 8 were damaged.

The general campaign itself resulted in a reduction of more than 70 per cent in the number of exceptions received on the grand divisions in the handling of less than carload freight in April, as compared with March. The reduction as compared with October, 1920, was more than 80 per cent. It must be borne in mind, however, that while the tonnage in March and April was approximately the same, that in April was 30 per cent less than in October, 1920. The table which follows illustrates in detail the exceptions which were received against the two grand divisions during the month of April, in comparison with the totals for March, 1921, and October, 1920:

	Southern Lines	Y. & M. V.	Total April 1921	Total March 1921	Decrease	Per cent of Decrease
Shorts	46	108	154	666	512	76.8
Bad orders	146	218	364	1,269	905	71
Filferages	10	32	42	118	76	64
Overs	102	98	200	537	337	62
Astrays	46	73	119	430	311	72
Total, April, 1921	350	529	879	3,020	2,141	70
Total March, 1921	1,426	1,594	3,020	....	....	..
Total October, 1920	2,311	2,796	5,107	....	....	..

Decrease in April as compared with October, 4,280, or 82 per cent

Interest of Employees Continues

The entire campaign, according to the officers of the Illinois Central immediately in charge, was marked by the co-operation of every officer and employee. Intense interest and rivalry were created between the larger loading stations and between the various divisions, with the result that interest among the employees in preventing loss and damage to freight has been permanently increased. An especially gratifying result of the campaign has been the increased activity of the employees on the grand divisions during the month of May. Reports received up to and including May 16 indicated that a better showing was made during that month than was made even in April, while the campaign was on.

Water Softening as a Factor in Fuel Conservation

By C. R. Knowles

Superintendent of Water Service, Illinois Central, Chicago

FUEL SAVING is only one of the many benefits to be derived from water softening, others including the longer life of flues and firebox sheets, a reduction in the cost of labor for cleaning and repairing boilers, fewer boiler failures due to leaking, greater locomotive mileage between stoppings, fewer locomotives required to do the same work and a material saving in overtime and delays. Space will not permit of discussing the many advantages of water softening in detail; this article, therefore, will be confined as closely as possible to a discussion of fuel economy through the use of properly softened water.

The cost of fuel to the Class I railroads of the United States in 1920 was $765,870,663, according to the report of the Interstate Commerce Commission to the Senate, the quantity and cost of various fuels being as follows:

Bituminous coal	155,343,635 tons	$641,224,469
Anthracite coal	5,779,819 tons	24,268,764
Oil	55,590,783 bbls.	97,874,094
Coke	91,642 tons	1,027,336
Wood, etc.	.....	1,476,000

The fact that some of this fuel is wasted or consumed unnecessarily is generally recognized and railroads have waged extensive campaigns in the interest of conservation of fuel. These campaigns, however, have been directed largely toward effecting economies in the handling and use of fuel, neglecting to a certain extent at least the quality of the water furnished and its possible effect upon the fuel consumption. If we stop to consider that practically all of the fuel used on railroads is for the purpose of converting water into steam and that much of the steam is used for heating or handling water it will be realized that a campaign against fuel waste is not complete unless a careful study is made of the water supply as well as the coal pile.

Chief among the many fuel wastes is that caused by boiler scale. No locomotive or other boiler is absolutely free from scale after it has been in service for a short time, the extent of the scale depending entirely upon the character of water used. The calcium and magnesium sulphates and bicarbonates are the most important scale-forming elements commonly found in boiler waters. Sulphate scale usually has a higher heat-insulating value than carbonate scale, due to the greater density in structure, although this may vary to some extent under different conditions and with water differing in character. Scale is objectionable in boilers for more than one reason, but the principal objection is due to its great heat-insulating value and the resultant loss in fuel necessary to drive the heat through the accumulated scale.

It is, of course, preferable to develop a natural water supply of satisfactory quality rather than to install a treating plant, but unfortunately this is not always possible, except at a prohibitive cost. Therefore, if a natural water supply of good quality cannot be developed the proper treatment of the available supply is necessary.

For convenience water treatment may be roughly divided into two general methods, namely, "Interior" and "Exterior" treatment, the first covering the use of chemicals and boiler compounds introduced directly in the boiler, the second covering the treatment and removal of the scale-forming materials before the water enters the boiler. Where facilities are not provided for fully treating the water outside the boiler, the use of a good compound is often advisable and is followed by good results when properly applied. The existing objections to the use of boiler compounds are due largely to their improper application rather than to the failure of the compounds themselves, and they have often been condemned as unsatisfactory when the fault lay in the failure to apply them as instructed. However a properly designed treating plant offers the most satisfactory and economical method of treating boiler waters, and the use of compounds should be confined to those points where the results to be obtained will not justify the expense of maintaining and operating a treating plant.

The lime-soda process in general use on American railroads is so well known that a detailed description is hardly necessary. It is sufficient to describe briefly the principal actions of the chemicals as applied to the water during treatment. Calcium and magnesium carbonates are soluble only in water containing carbonic acid gas; when the carbonic acid is removed the carbonates become insoluble and are precipitated. This is accomplished by adding enough lime to take up the carbonic acid.

The sulphate hardness is removed by adding soda ash which combines with the sulphates of lime, and forms carbonates of lime and sulphate of soda. Additional lime is then necessary to neutralize any carbonic acid present, the carbonate of lime is then precipitated leaving the sulphate of soda dissolved in the water.

The sulphate of magnesia and the nitrates and chloride of lime and magnesia, when present, are treated in a similar manner. The sodium salts left in the water after treatment will, if present in considerable quantity, cause trouble from foaming, particularly in the presence of suspended matter. This condition may be corrected by blowing down boilers, or the use of anti-foaming compounds, or both.

Water softeners are built in two general types, the intermittent and continuous. In the intermittent treating plant two or more tanks are always required, as it is necessary to allow the water to stand after treatment until reaction and precipitation have taken place. In the continuous treating plant the process of reaction and precipitation takes place as the water is passing through the softener.

Professor Schmidt of the University of Illinois determined that boiler scale only 0.02 in. thick caused a loss of boiler efficiency of 5.4 per cent. The following table shows the heat losses through the formation of scale of different thickness:

Character of scale	Thickness	Composition	Per cent loss
Hard	1/50 in.	Mostly carbonate	5.4
Soft	1/32 in.	Mostly carbonate	7.2
Hard	1/32 in.	Mostly carbonate	8.5
Soft	1/25 in.	Mostly carbonate	8.0
Hard	1/25 in.	Mostly sulphate	9.3
Hard	1/20 in.	Mostly sulphate	11.1
Soft	1/16 in.	Mostly sulphate	10.8
Soft	1/16 in.	Mostly carbonate	11.0
Soft	1/16 in.	Mostly carbonate	12.4
Hard	1/16 in.	Mostly carbonate	12.6
Soft	1/11 in.	Mostly carbonate	15.0
Hard	1/9 in.	Mostly sulphate	15.9

It may perhaps be considered unusual to find an accumulation of scale of the maximum thickness given in above table, but as a matter of fact this amount of scale is less than the thickness usually found in a locomotive at the shopping period in most sections of the country. In a report on the results of water treatment on a middle western railroad in the June 30, 1916, issue of the *Railway Age Gazette*, photographs were presented of samples of boiler scale, one of which was 1½ in. thick, taken from a front flue sheet brace after 10 months' service; another showed a sample of sulphate scale ¼ in. thick which put a boiler out of commission after three months' service; another specimen completely clogged up the space between the tubes after eight months' service.

In another case on a railroad operating through Iowa, scale ¾ in. thick was removed from the sheets of a locomotive after 56,000 miles. This represented the maximum thickness of scale in the boiler and was present only on the outer sheets. The scale was, of course, much lighter on the firebox and flue sheets.

These examples represent extreme conditions of scale formation and are, of course, not representative of average

conditions, as a scale ¼ in. thick will in many cases probably cause the sheet to burn or the boiler to leak to such an extent that it must be taken out of service.

A middle western railroad, in a report covering the operation of treating plants for 1920, estimates that a saving of at least 60,000 tons of coal was accomplished by the removal of 4,517,883 lb. of scale-forming material; 750 engines were operated in the treated water territory, therefore, the scale forming solids removed from the water averaged over 6,000 lb. per engine. Assuming that only 25 per cent would have adhered to the tubes and sheets, the average thickness of scale formed in these boilers would have been 3/16 in. As the heat loss through 3/16 in. of scale is from 20 to 30 per cent the estimated saving of 60,000 tons of coal would appear to be very conservative.

A saving of the entire cost of a water softening plant in less than two months' time through the resultant economy in the fuel used in locomotives constitutes an unusual demonstration of the value of water treatment. This, in short, is the nature of the results secured by a contractor on railroad construction in the boilers of two steam shovels, six locomotives and two hoisting engines. The demonstration is especially conclusive because the isolation of the equipment limited its supply of water to a single source and because the record of performance gives a check not only on the total quantity of fuel but also on the relative amount of fuel used per unit of equipment performance.

The Walsh Construction Company, Davenport, Ia., contractor for the grading for the new Markham Yard of the Illinois Central at Homewood, Ill. (near Chicago), found the water upon which it was dependent for its boiler supply so unsatisfactory as to cause serious difficulty in the operation of equipment. As a result, a water softening plant was installed which treated all the water used in the boilers after October 27, 1918, and records of the fuel used before and after the installation of the softener constitute the basis for the conclusions reached with regard to the fuel economy.

This treating plant was placed in service October 27. In the period from September 6 to October 27 there were a total of 650 boiler shifts in the course of which an average of 4.2 tons of coal per boiler shift was used. Considering this with the quantity of earth moved by the contractor during this period the cost of the coal used per cubic yard of earth handled amounted to $.0306 per cu. yd. For a period of not quite two months following the installation of the water softener the coal consumed decreased to 3.1 tons per boiler shift, resulting in a cost of only $.0204 per cu. yd. of material graded. In this case 25 per cent of the coal per boiler shift was saved through the treatment of water and operating conditions were improved to such an extent that the cost of fuel per cu. yd. of material graded was reduced 33 per cent.

The following data are taken from Bulletin No. 11 of the Engineering Experiment Station, University of Illinois. An Illinois Central Engine having run 21 months and accumulated a scale deposit averaging 3/64 in. in thickness, was given a two days' test according to the test code of the American Society of Mechanical Engineers. It was then cleaned and after two days, the following shows the water evaporated from and at 212 deg. F. per pound of combustible before and after cleaning:

Evaporation Per Pound of Combustible	
Before cleaning	7.53 lb.
After cleaning	8.48 lb.
Increase after cleaning	0.95 lb.

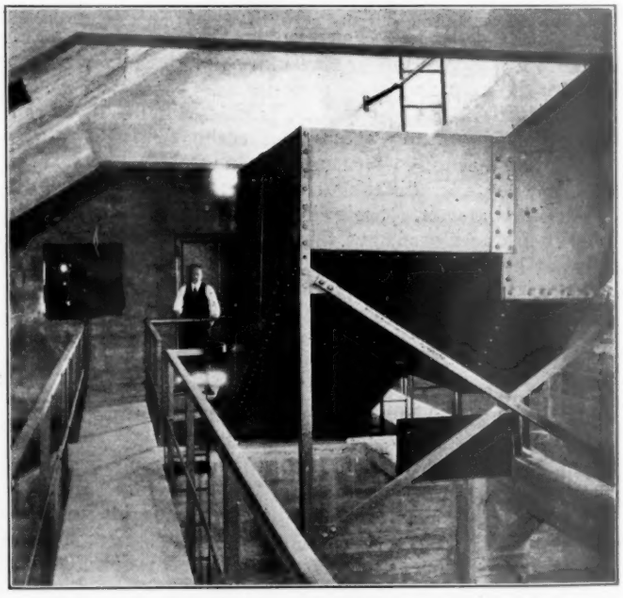
In the above case 485 lb. of scale was removed from the boiler, resulting in the saving of over 10¼ per cent in fuel.

From the best information available the locomotives and power plants on the railroads of the United States consume annually 720,000,000,000 gal. of water. While there is no complete record of the number of water treating plants in service on the railroads of the country a fairly accurate estimate would be in the neighborhood of 600 plants and from the known capacity of some 200 plants the average amount of water treated by each plant is 36,000,000 gal. per year, making approximately 21,600,000,000 gal. of treated water used annually on our railroads. Assuming that 50 per cent of the water used is of such quality that treatment would be economical, it means that we have less than six per cent of the treating plants that are needed. As previously stated in this article, in some instances the existing bad water conditions may be relieved by the development of a good water supply within a reasonable distance, but the proper treatment of the existing supply is the only remedy in the majority of cases.

The fuel Director for the United States Railroad Administration stated in 1918 that "all locomotives have 1/16 in. of scale 40 per cent of the time and many have scale from ⅛ to ¼ in. in thickness." He further states "that in some districts it is not unusual to find ½ in. of scale on the boiler sheets." His estimate of the loss of fuel on account of scale on boiler sheets for the year 1918 was $50,000,000. If we use the same ratio of loss on the cost of fuel for 1920 we have an annual loss of $60,000,000 on the railroads of the country which represents 6 per cent on an investment of one billion dollars. When we consider that the fuel saved represents only a portion of the saving to be effected through improving the quality of boiler water it is apparent that there are few investments that can be made on a railroad that will show quicker or greater returns than a properly designed water treating plant.

Modern Refinement in Coaling Station Design

THE COALING STATION and sanding plant recently completed for the Philadelphia & Reading at the Tulip street engine terminal in Philadelphia is unique in the degree of refinement that has been carried out in the perfection of both structural details and operating facilities.



View Above the Bin Showing the All-Concrete Roof and the Partitions Between the Three 200-Ton Coal Pockets

The building is of reinforced concrete throughout, including the superstructure over the bins and the housing for the elevating bucket and the stairway which is entirely en-

closed. The facilities also include a steam heated wash and locker room for employees.

The plant has a storage capacity of 600 tons of coal and, for the purpose of providing separate storage for an-

General Elevation of the Station, with the Wash Room on the Left

thracite coal, lump coal and stoker coal, the bin is divided into three pockets, each holding 200 tons. The bins are equipped with gates in such a way that the coal in each one is available to three tracks. The stoker coal is passed

The Plant from the Receiving Track Side Showing the Concrete Cover Over the Track Hopper

through screens in the discharge chute 12 ft. long by 6 ft. wide of the lip design and offset. The perforations are 2 in. wide by 6 in. long.

The coal is received from cars in an all-concrete receiving hopper which is 24 ft. long in the clear and has a slope of 50 deg. to make it suitable to handle green sand also. The coal or sand, whichever may be handled, is discharged by gravity into a three-ton capacity measuring feeder which is actuated by the ascent and descent of the elevating bucket. This feeder automatically loads the three-ton, ball-bearing coal bucket which is connected with a 7/8-in. hoisting cable to a direct-connected electric hoist which is equipped with a 22-hp. alternating current electric motor with solenoid brake.

Working in connection with the electric motor is an automatic controller enclosed in steel cabinet. The controller is equipped with a push button starting and stopping station which permits the continuous and automatic operation of the elevating bucket as desired. By pushing one button the machinery is started and the bucket operates up and down without attention, and when it is desired to stop, the second push button brings the motor to rest by setting the

"Safety-First" Undercut Coaling Gates with Hooded Aprons, All Operated from Platform Between the Coaling Plant Columns

brake. The hoist and controller are located in a separate reinforced concrete machinery house.

An unusual feature of this plant is a wash house which has been provided for the convenience of the workmen about the terminal. This room is equipped with 20 all-steel lockers, 8 wash bowls with hot and cold water, 2 toilets, 4 urinals and 1 shower with hot and cold water. The washhouse is heated by steam radiators equipped with standard central apparatus. The plant is also thoroughly wired for electric lights.

The facilities for handling the sand are also very complete. After being elevated in the bucket, the green sand is by-passed to a reinforced concrete pocket having a storage capacity of 100 tons of green sand. This bin is equipped with three special control gates through which the sand gravitates to three Beamer rectangular steam sand dryers. As the sand dries it escapes through the coils and is gathered on a large steel hopper, where foreign matter, pebbles, etc., are screened out by gravity.

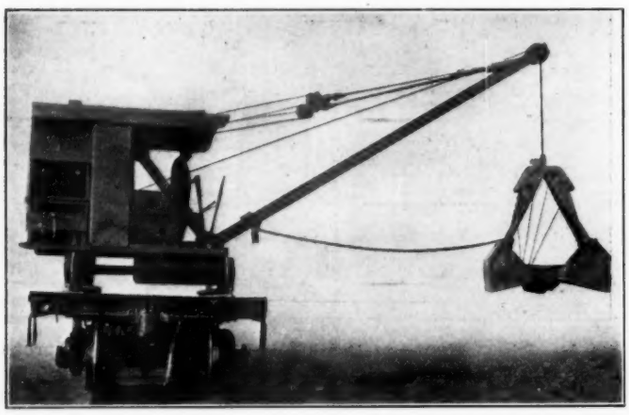
The dry sand passing through the screen falls into a hopper on a Tyrone automatic sand drum and, by the con-

trol of two air valves, is blown in a straight line, four-inch, extra-heavy pipe to an all-concrete dry sand bin located over the pocket. This dry sand bin is lined with hollow tile to prevent condensation and keep it thoroughly dry. From this bin the dry sand gravitates through discharge pipes to three moisture-proof undercut sand valves for supplying dry sand to locomotives on three coaling tracks. The receiving hopper is covered with an all-reinforced concrete canopy to protect the men from the elements when unloading coal.

This plant was designed and built throughout, including the foundation, by the Roberts & Schaefer Company, Chicago, under the direction of Charles Corwin, acting superintendent, the work being subject to the general direction of Samuel T. Wagner, chief engineer of the Philadelphia & Reading. The contract price for the plant was $115,000.

A Many Purpose Locomotive Crane

IN THE HANDLING of materials in railway terminals, shops, store yards, etc., as well as in construction and maintenance work, there is an increasing necessity for employing better and quicker methods of carrying on the work. In meeting this necessity light, portable, high speed locomotive cranes are becoming more and more important factors. These machines are being used economically for many purposes such as the loading and unloading of rail, ties, spikes, angle bars, tie plates, frogs, switches and numerous other heavy materials in store yards, tie treating plants, and out on the line. Such cranes are also useful in bridge work for handling material which is not heavy enough to require a wrecking crane.

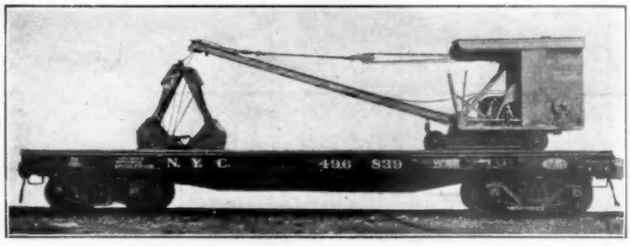


The Truck Body Can Be Shifted on the Axles, Reducing the Clearance to 6 ft. 6 in.

Equipped with a grab bucket the cranes economically move dirt, coal, cinders, etc., and when fitted with a magnet may be used for handling scrap in reclamation plants or other places.

For work of this character, the Universal Crane Company, Elyria, O., has developed a portable locomotive crane of three to four tons capacity, which can be handled by one man. It is operated by its own 4-cylinder gasoline engine or electric motor and handles a clam shell bucket, magnet or hoist block. Various other equipments such as a dragline bucket, an exciter generator for furnishing current to an electric magnet, a capstan head for snaking loads or shifting cars, etc., can be added as desired.

This crane can be mounted to suit the work it has to do. It may be mounted on a motor truck, a rubber tired trailer, a continuous tread, or a wide tired steel wheel industrial truck that will operate on the ground or standard gage track. To suit the railroad field, the mounting illustrated has been developed after extensive investigations to determine a convenient form. This mounting consists of a low wheel truck built to travel under crane power over a pair of rails which are laced together and laid on standard railroad flat cars. Two or more of the rail sections may be used and moved ahead by the crane as desired, or the rails may be laid from car to car over a train for the crane to operate over. The flat cars need not be permanently tied up, as, when it is not in



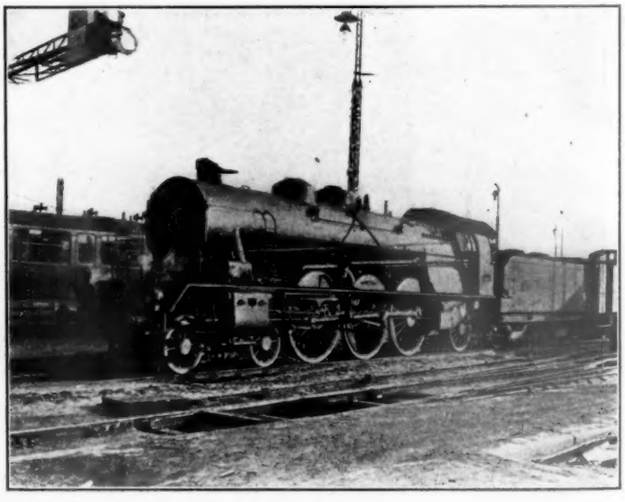
The Crane Travels Under Its Own Power Over Rails Laid on the Flat Car

use, the crane can be run off onto a platform, this relieving the cars for other service.

One of the most important features of this crane is its compactness. The rear swinging clearance is 7 ft. 6 in. This clearance from the center of the car can be decreased to 6 ft. 6 in. (half of 13 ft. track centers) by mechanically shifting the truck body on the axles one foot in either direction where it locks. This allows the crane to be used without fouling traffic on an adjacent track.

THE CHICAGO, ROCK ISLAND & PACIFIC has created a new department of personnel and public relations under the supervision of H. S. Ray, assistant to the president. Mr. Ray will be especially concerned with the maintenance of cordial relations between the employees themselves, and between the management and the employees.

AN ATTEMPT TO WRECK an American Express Company's train of fourteen cars was made 2 miles west of Willoughby, Ohio, on the New York Central, early on the morning of July 14. Officers of the road reported that spikes had been pulled and tie plates removed from the rails with tools stolen from the Willoughby tool house. Although the train jumped the track when it struck the spot where the spikes had been removed, no cars were overturned.



Compound Pacific, Equipped with Superheater, on the Paris, Lyons & Mediterranean

General News Department

The Union Pacific, on July 17, re-employed 1,500 men on its Mountain division who had been laid off with the slump in business.

The request to suspend the 5 per cent freight rate reduction made by the railroads operating south of the Michigan Central in Michigan, was filed by the Traffic Department of the Michigan State Farm Bureau, and the Grand Rapids Association of Commerce, and not by the Michigan Traffic League, as reported. According to T. H. Wallace, of Lansing, Mich., president of the League, that body, however, will soon file joint complaints with the Michigan Public Utilities Commission and the Interstate Commerce Commission, asking for hearings on the adjustment of the entire Michigan class rate situation.

According to an article appearing in the "Illinois Central Magazine," the freight on a $1.25 meal, served in Springfield, Ill., consisting of beef from Iowa, salmon from Oregon, and other foods from as far away as Louisiana and New York, is approximately 1 cent and 2 mills. In this computation, the cost of transportation is based on carload rates from the producers and manufacturers to the wholesalers, and the less-than-carload rates from the wholesalers to the retailers. The products figured in on the meal were coffee, pepper, salt, beef, wheat, butter, salmon, strawberries and sugar.

Work of C., B. & Q. Homeseekers' Bureau

Through the efforts of the Homeseekers' Bureau of the Chicago, Burlington & Quincy, the co-operation of the State Immigration Bureau and the several government land offices, 2,222,380 acres of land were homesteaded in the Buffalo, Douglas, Newcastle and Cheyenne, Wyoming, land districts, during 1920. In addition about 10,000 acres of irrigated homestead land were taken up in the Shoshone, Wyo., and North Platte, Neb., projects. It was estimated that the number of families received at western stations along the Burlington and recognized as new settlers and so reported by agents, totaled 5,692.

P. R. R. Insurance Department Increases Death Benefits

The Voluntary Relief Department, the company insurance plan of the Pennsylvania System, has announced amendments in the regulations pertaining to death benefits. Under the new rules, which went into effect June 1, the maximum death benefit has been increased and now ranges from $1,000 in the first class to $5,000 in the fifth class. The premium rates are very low, ranging from $14.40 annually per $1,000 of insurance for employees not over 45 years of age, to double that amount for employees over 60 years of age. These low rates are made possible by the fact that all operating expenses are paid by the railroad company.

M. K. & T. Locomotive Makes Record Run

Missouri, Kansas & Texas locomotive No. 392, a coal burning Pacific type of 41,000 lb. tractive effort, recently made a continuous run of 1,024 miles, so far as is known the longest on record. The occasion was the movement of a special train of Shriners from Waco, Texas, to Kansas City on the way to the Shriners convention at Des Moines. The locomotive was suitably decorated at Denison, Tex., and ran light to Waco where it was immediately turned and started on its trip on the Shriner's special. The average speed on the trip was 40 miles an hour. The engine was in perfect condition upon arrival at Kansas City and because of its elaborate decorations it was desired to run it to Des Moines but it was too heavy for the connecting line to handle.

"Management Engineering"

"Management Engineering" is the title of a new monthly publication issued by the Ronald Press, New York. Its contents are devoted to a discussion of problems of management and production, the object, as stated in the first issue, being "to help executives better to discharge their duties in preparing, organizing and directing industry to secure maximum production."

L. P. Alford is editor of Management Engineering and E. W. Tree, associate editor. Mr. Alford was formerly editor of the American Machinist and later of Industrial Management. He is a vice-president of the American Society of Mechanical Engineers and chairman of the Management Division of that society.

Salary Reductions on the Baltimore & Ohio

Coincident with the wage reductions for employees which went into effect on July 1, the Baltimore & Ohio also reduced "in like manner the compensation of those general, division and other officers and monthly employees who in the light of the higher cost of living were granted increases in their compensation at or since May 1, 1920," according to an announcement made on July 18. The announcement continued: "While the wages of such officers and employees do not come under the decision of the Labor Board, it was deemed necessary, because of the general conditions which so adversely affect the revenues of transportation companies, that such action be taken, notwithstanding it is recognized that during the period of inflation the officers did not receive increases in their salaries at the time or of the extent generally granted to many classes of officers and employees of industrial organizations nor in proportion to the increases granted from time to time to other classes of railroad employees generally."

Unique Position of the Texas-Mexican

No railroad in the United States, perhaps, occupies a more unique position so far as ownership and management is concerned than the Texas-Mexican, which runs between Laredo, Tex., and Corpus Christi, 160 miles. It is a part of the National Railways of Mexico, a little less than 51 per cent of the stock of which is owned by the Mexican government, notwithstanding the fact that the Texas-Mexican division is situated wholly in the United States. Naturally, when the Mexican government took charge of the operation of the National Railways several years ago as a revolutionary war measure, it did not extend this control to the Texas-Mexican. The latter line has continued to be operated by a separate corporation, as required by the laws of Texas. The Texas-Mexican was built as an independent line, but it passed into the hands of the old Mexican National Railroad Company many years ago. When the merger of the latter into the National Railways of Mexico was put into effect the Texas part of the system went in along with the rest.

At the recent annual meeting of the board of directors of the Texas-Mexican Railway Company, held here, the following officers were elected to serve during the ensuing year: Miles T. Cogley, president; S. DeWolf, vice-president and general manager; M. M. Leyendecker, general superintendent; R. L. Woodul, auditor; C. M. Fish, traffic manager; Alden B. Muller, secretary-treasurer.

Operating Statistics of Large Steam Roads — Selected Items for the Month of May, 1921,

Region, road and year	Average miles of road operated	Locomotive-miles: Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross, Excluding locomotive and tender	Ton-miles (thousands): Net, Revenue and non-revenue	Locomotives on line daily: Serviceable	Locomotives on line daily: Unserviceable	Locomotives on line daily: Per cent unserviceable	Locomotives on line daily: Stored
New England Region:												
Boston & Albany 1921	394	246,513	266,860	31,010	4,464	63.4	242,334	95,605	124	29	19.0	...
1920	394	349,859	372,420	38,295	6,931	70.0	374,227	171,069	133	32	19.4	...
Boston & Maine 1921	2,469	517,318	577,398	48,135	10,888	68.7	578,209	243,861	357	104	22.6	69
1920	2,469	801,013	911,818	87,160	16,601	75.3	868,685	399,644	369	99	21.2	3
N. Y., N. H. & H. 1921	1,959	430,278	461,892	31,319	9,803	68.1	502,908	212,078	291	79	21.4	36
1920	1,938	462,890	483,374	35,649	10,004	73.1	507,553	226,741	269	97	26.5	...
Great Lakes Region:												
Delaware & Hudson 1921	880	347,632	458,688	31,349	8,538	60.8	577,956	285,840	283	33	10.4	121
1920	858	461,650	660,415	48,557	13,048	72.7	815,403	439,509	265	33	11.1	11
Del., Lack. & Western 1921	997	490,049	598,516	114,985	14,758	66.9	833,101	383,779	307	53	14.7	48
1920	997	454,948	554,059	104,634	12,703	71.6	734,351	380,288	280	73	20.7	18
Erie (inc. Chic. & Erie) 1921	2,259	826,571	924,621	43,358	27,256	67.7	1,624,761	770,095	562	134	19.3	143
1920	2,259	1,006,924	1,140,214	42,023	34,796	74.8	1,993,841	1,018,282	606	94	13.4	63
Lehigh Valley 1921	1,431	527,711	586,024	60,545	15,166	63.6	929,394	427,402	430	105	19.6	136
1920	1,429	528,852	590,284	61,819	15,175	72.2	924,795	490,777	358	185	34.1	102
Michigan Central 1921	1,829	418,226	428,476	17,926	12,875	61.8	708,608	269,455	339	78	18.7	116
1920	1,826	433,635	440,006	17,379	14,588	77.3	732,622	350,415	351	64	15.4	...
New York Central 1921	5,655	1,543,562	1,698,829	131,794	54,502	63.1	3,167,232	1,365,010	1,046	604	36.6	358
1920	5,646	1,995,111	2,239,857	173,245	76,234	68.6	4,281,953	1,999,550	(1)	(1)	(1)	(1)
N. Y., Chic. & St. L. 1921	572	308,138	308,373	674	9,260	66.9	475,550	182,327	109	52	32.3	40
1920	573	278,483	280,544	1,031	8,709	82.1	424,417	201,465	112	54	32.5	35
Pere Marquette 1921	2,207	300,957	312,058	6,636	7,501	66.6	438,406	186,035	165	44	21.1	17
1920	2,200	358,461	372,292	6,733	9,601	81.6	485,302	252,555	158	41	20.6	5
Pitts. & Lake Erie 1921	225	91,281	96,284	475	2,930	61.4	217,370	124,748	67	13	16.3	20
1920	225	45,704	49,585	1,127	1,737	78.1	123,912	79,605	68	11	23.9	49
Wabash 1921	2,418	514,735	541,719	6,980	15,442	69.1	806,193	345,861	277	66	19.2	54
1920	2,418	493,272	504,590	7,919	14,583	80.9	724,223	353,152	259	74	22.2	15
Ohio-Indiana-Allegheny Region:												
Baltimore & Ohio 1921	5,185	1,630,907	2,034,767	131,241	38,908	59.5	2,576,366	1,267,155	1,025	406	28.4	182
1920	5,154	2,017,619	2,552,935	137,387	57,653	71.1	3,624,567	1,956,060	1,054	256	19.7	44
Central of N. J. 1921	679	246,882	273,374	34,719	5,503	58.5	372,563	182,077	194	68	26.0	15
1920	679	302,973	334,756	35,670	6,470	64.8	420,436	222,527	212	57	21.2	...
Chicago & Eastern Ill. 1921	1,131	212,437	213,257	3,821	4,982	63.0	299,993	147,957	123	45	26.8	48
1920	1,131	259,027	261,594	4,817	6,303	67.2	378,661	196,091	132	60	31.3	6
C., C., C., & St. L. 1921	2,382	631,733	659,521	2,099	16,287	55.6	1,068,423	471,993	319	121	27.5	51
1920	2,393	665,414	682,860	211	19,891	69.6	1,162,279	564,224	303	102	25.2	9
Elgin, Joliet & Eastern 1921	837	83,312	90,979	5,304	2,434	66.2	177,999	93,871	98	10	9.3	34
1920	833	170,584	196,124	16,467	5,712	72.0	383,617	212,042	94	14	13.0	...
Long Island 1921	395	39,946	44,970	7,450	432	69.8	22,961	9,085	34	8	19.4	3
1920	395	40,149	55,024	12,321	452	64.8	23,098	9,566	37	10	21.6	...
Pennsylvania System 1921	10,874	3,744,948	4,067,980	286,556	95,709	61.7	6,625,486	3,282,743	2,699	795	22.8	958
1920	10,844	4,802,720	5,343,048	407,604	127,301	69.4	7,967,205	4,260,222	2,042	921	31.1	28
Phila. & Reading 1921	694	485,206	550,479	70,442	12,024	61.9	822,871	430,683	376	79	17.4	171
1920	691	672,356	782,894	107,557	18,425	70.3	1,234,076	683,018	281	89	24.1	...
Pocahontas Region:												
Chesapeake & Ohio 1921	2,545	793,410	852,002	24,863	22,759	57.2	1,808,986	984,641	444	113	20.2	50
1920	2,520	866,965	967,900	25,028	26,386	63.4	1,909,821	1,056,957	420	119	22.0	12
Norfolk & Western 1921	2,210	742,584	900,841	37,106	20,478	56.9	1,646,025	898,209	587	109	15.7	199
1920	2,190	770,174	996,345	50,861	23,198	65.8	1,668,064	936,076	462	219	32.2	59
Southern Region:												
Atlantic Coast Line 1921	4,887	630,964	633,362	9,842	14,430	62.0	750,846	275,739	292	120	29.1	15
1920	4,891	807,363	813,424	13,614	17,899	70.1	889,779	367,508	281	148	34.5	...
Central of Georgia 1921	1,908	239,210	240,030	2,816	4,737	67.2	257,105	113,483	111	23	17.2	...
1920	1,913	236,385	239,351	3,518	4,883	76.8	251,370	115,376	103	17	14.2	...
I. C. (inc. Y. & M. V.) 1921	6,151	1,560,606	1,567,420	68,372	38,912	62.3	2,467,197	1,075,745	747	102	12.0	15
1920	6,151	2,066,533	2,077,691	43,560	55,221	69.7	3,253,664	1,498,431	722	104	12.6	20
Louisville & Nashville 1921	5,026	1,527,410	1,632,379	59,005	25,589	58.5	1,683,730	783,807	550	101	15.5	36
1920	5,024	1,600,535	1,746,625	57,840	28,778	66.4	1,740,170	852,749	510	129	20.2	...
Seaboard Air Line 1921	3,537	409,898	415,609	6,141	8,715	67.0	446,821	172,746	167	91	35.3	...
1920	3,537	510,075	516,448	8,467	11,563	73.0	589,778	258,872	190	78	29.1	...
Southern Ry. 1921	6,942	1,176,851	1,196,243	28,705	23,835	61.3	1,323,636	521,236	891	228	20.4	94
1920	6,942	1,542,209	1,578,940	47,310	37,161	74.0	1,899,117	864,631	919	185	16.8	3
Northwestern Region:												
C. & N. W. 1921	8,334	1,243,392	1,265,943	13,960	25,476	65.0	1,388,442	587,254	669	282	29.7	50
1920	8,003	1,687,241	1,720,689	23,410	38,327	67.5	2,168,142	951,697	693	217	23.8	1
C., M. & St. P. 1921	10,618	1,256,454	1,289,481	56,258	30,649	66.0	1,648,206	726,711	798	257	24.0	171
1920	10,626	1,671,611	1,733,357	75,696	45,453	73.8	2,336,832	1,127,685	677	293	30.0	3
C., St. P., M. & O. 1921	1,726	261,690	270,958	10,054	4,629	71.8	231,566	92,792	161	52	24.4	50
1920	1,726	339,607	363,580	15,924	6,682	79.1	331,178	156,266	158	49	23.7	23
Great Northern 1921	7,982	670,825	690,823	25,120	18,262	64.9	1,055,823	501,843	593	186	23.9	257
1920	7,985	897,468	931,099	38,429	28,067	72.8	1,555,357	819,283	477	221	31.7	28
M., St. P. & S. Ste. M. 1921	4,225	402,748	432,816	11,656	8,488	69.6	428,502	191,795	347	53	13.3	53
1920	4,227	531,531	516,335	11,696	13,021	78.3	620,174	306,530	322	74	18.7	28
Northern Pacific 1921	6,408	657,641	686,389	45,754	19,001	67.3	1,056,546	484,843	554	162	22.6	153
1920	6,428	902,769	954,834	66,049	27,273	79.2	1,442,294	748,182	531	132	19.9	41
Ore.-Wash. R. R. & Nav. 1921	2,198	180,957	199,632	23,994	4,504	72.2	256,608	126,330	120	44	26.8	10
1920	2,189	252,743	288,122	40,556	6,446	81.6	346,558	184,306	114	44	27.8	...
Central Western Region:												
Atch., Top. & Santa Fe. 1921	9,771	1,437,486	1,507,576	74,858	37,585	65.1	2,110,658	785,468	800	176	18.0	172
1920	9,517	1,813,013	1,912,899	88,023	46,315	68.9	2,524,810	1,060,778	683	223	24.6	15
Chicago & Alton 1921	1,010	324,099	330,798	4,830	6,451	59.0	406,336	172,654	106	41	27.9	16
1920	1,010	340,625	348,100	6,538	7,434	66.3	445,162	172,235	109	39	26.4	3
Chi., Burl. & Quincy 1921	9,326	1,356,501	1,413,088	61,426	35,059	62.8	2,139,004	1,014,186	678	272	28.6	131
1920	9,304	1,767,650	1,847,278	86,085	51,664	71.3	2,855,142	1,403,217	637	254	28.5	..
Chi., Rock Isl. & Pac. 1921	7,662	1,203,767	1,221,208	11,072	25,279	65.6	1,400,663	600,147	575	172	23.0	56
1920	7,648	1,502,503	1,530,091	11,961	33,104	71.2	1,743,111	783,748	495	217	30.5	17
Denver & Rio Grande 1921	2,593	178,050	218,770	42,222	3,991	67.7	230,617	111,996	214	99	31.6	63
1920	2,585	282,807	346,111	63,896	6,232	74.9	346,052	182,113	227	81	26.3	8
Oregon Short Line 1921	2,359	255,903	263,185	17,428	5,665	67.0	343,756	165,277	189	39	17.1	59
1920	2,353	403,025	421,843	30,898	9,875	75.0	561,326	294,254	165	57	25.7	4
Southern Pacific 1921	6,975	1,050,520	1,214,421	235,384	28,601	65.3	1,651,499	679,926	547	217	28.4	36
1920	6,970	1,268,167	1,462,929	258,990	35,613	73.0	1,942,854	892,908	562	158	21.9	3
Union Pacific 1921	3,615	668,877	678,897	24,598	21,406	76.3	1,109,749	501,047	381	159	29.4	121
1920	3,614	1,105,838	1,121,884	48,636	33,506	80.3	1,681,388	799,136	362	143	28.3	29
Southwestern Region:												
Gal., Harrisb'g & S. An. 1921	1,367	224,268	224,820	887	4,690	63.2	275,777	115,957	71	50	41.3	...
1920	1,372	292,605	293,764	1,476	7,039	70.7	392,733	178,253	82	36	30.5	...
Gulf, Colo. & Santa Fe. 1921	1,895	278,066	282,927	5,533	6,593	63.6	384,793	171,249	91	57	38.5	...
1920	1,895	248,398	252,199	5,184	5,806	72.6	309,524	143,952	92	44	32.4	3
Missouri, Kans. & Tex. 1921	1,710	233,963	234,001	6,181	6,135	60.2	350,640	141,117	142	39	21.5	59
1920	1,710	351,153	352,206	7,995	9,381	64.7	506,704	208,499	110	24	17.9	2
Mo., Kas. & Tex. of Tex. 1921	1,740	214,642	219,166	2,511	4,281	59.1	254,523	102,673	101	44	30.3	24
1920	1,740	266,842	271,931	10,270	4,888	66.3	267,493	113,942	106	45	29.8	...
Missouri Pacific 1921	7,263	1,033,013	1,039,673	26,648	24,382	69.2	1,368,395	627,384	384	178	31.7	35
1920	7,263	1,199,948	1,208,418	33,649	30,574	76.5	1,642,674	812,875	410	139	25.3	...
St. Louis-San Francisco. 1921	4,761	706,468	714,705	11,507	12,251	65.0	697,420	300,110	330	143	30.2	67
1920	4,761	916,450	927,288	18,222	16,513	67.8	939,806	434,168	367	102	21.7	...
Texas & Pacific 1921	1,952	262,156	262,156	2,956	5,802	65.6	315,111	125,247	119	71	37.3	23
1920	1,947	349,915	349,989	6,147	7,602	69.9	411,330	174,627	126	69	35.6	4

[1] Data not available. [2] On basis of way bill weights and distances.

Compared with May, 1920, for Roads with Annual Operating Revenues above $25,000,000

Region, road and year	Average number of freight cars on line daily: Home	Foreign	Total	Per cent unserviceable	Stored	Gross tons per train, excluding locomotive and tender	Net tons per loaded car	Net ton miles per car-day	Car-miles per car-day	Net ton miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotive and tender	Passenger service: Train-miles	Passenger train car-miles
New England Region:													
Boston & Albany....1921	3,347	4,012	7,359	7.8	747	983	388	21.4	419	30.9	7,829	196	313,659	1,997,778
1920	595	9,369	9,964	3.9	.....	1,070	489	24.7	554	32.0	14,009	192	319,130	2,041,267
Boston & Maine....1921	18,104	13,480	31,584	18.9	3,765	1,118	471	22.4	249	16.2	3,187	151	861,064	4,602,054
1920	7,339	35,087	42,426	6.8	.....	1,084	499	24.1	304	16.8	5,222	...	861,817	4,762,631
N. Y., N. H. & H....1921	23,872	14,695	38,567	20.4	2,156	1,169	493	21.6	177	12.0	3,492	168	1,033,610	6,777,644
1920	8,427	40,675	49,102	5.5	.....	1,097	490	22.7	149	9.0	3,774	193	1,135,550	7,208,347
Great Lakes Region:														
Delaware & Hudson....1921	11,207	5,157	16,364	9.7	1,839	1,563	822	33.5	563	27.7	10,473	186	189,581	1,049,617
1920	3,675	16,399	20,074	5.0	.....	1,766	952	33.7	706	28.8	16,516	191	188,453	1,034,887
Del., Lack. & Western..1921	17,938	7,184	25,122	9.4	1,389	1,700	783	26.0	493	28.3	12,420	172	496,329	3,546,485
1920	5,063	18,402	23,465	4.2	.....	1,614	836	29.9	523	24.4	12,307	...	470,466	3,371,370
Erie (inc. Chic. & Erie).1921	40,767	14,485	55,252	15.5	14,994	1,966	932	28.3	450	23.5	10,998	139	677,615	5,023,574
1920	8,915	51,898	60,813	6.2	.....	1,980	1,011	29.3	540	24.7	14,543	142	688,020	4,704,181
Lehigh Valley.....1921	31,975	9,487	41,462	17.8	3,756	1,761	810	28.2	333	18.5	9,637	164	360,584	2,778,574
1920	10,228	30,680	40,908	5.4	.....	1,749	928	32.3	387	16.6	11,079	179	375,980	2,801,530
Michigan Central.....1921	19,539	11,926	31,465	15.7	2,247	1,694	644	20.9	276	21.3	4,751	120	568,434	4,880,567
1920	4,177	35,511	39,688	5.7	.....	1,689	808	24.3	285	15.3	6,192	...	611,960	6,134,123
New York Central.....1921	91,024	48,913	139,937	12.8	39,452	2,052	884	25.0	315	19.9	7,786	117	2,330,506	18,526,118
1920	27,645	128,688	156,333	7.1	.....	2,146	1,002	26.2	413	22.9	11,424	...	2,478,340	19,402,592
N. Y., Chic. & St. L....1921	5,664	4,871	10,535	15.8	2,026	1,543	592	19.7	558	42.4	10,284	109	85,246	556,816
1920	893	7,223	8,116	6.3	.....	1,524	723	23.1	801	42.2	11,351	...	69,163	507,458
Pere Marquette.....1921	11,390	9,073	20,463	17.0	1,000	1,457	618	24.8	295	17.8	2,719	130	296,229	1,425,049
1920	3,700	17,943	21,643	6.1	.....	1,354	705	26.3	376	17.5	3,703	155	296,445	1,441,112
Pitts. & Lake Erie.....1921	16,861	6,533	23,394	19.5	1,587	2,381	1,367	42.6	172	6.6	17,914	90	109,854	581,282
1920	3,334	21,370	24,704	8.1	.....	2,711	1,742	45.8	104	2.9	11,435	91	107,962	541,853
Wabash 1921	13,062	9,680	22,742	10.4	.....	1,566	672	22.4	491	31.7	4,614	159	525,292	2,775,090
1920	4,692	19,662	24,354	9.5	.....	1,468	716	24.2	468	23.9	4,712	171	545,706	2,787,845
Ohio-Indiana-Allegheny Region:														
Baltimore & Ohio.....1921	72,111	28,039	100,150	13.7	7,512	1,580	777	32.6	408	21.1	7,884	178	1,381,229	8,721,469
1920	23,166	79,077	102,243	6.6	.....	1,796	969	33.9	617	25.6	12,244	...	1,346,301	8,086,602
Central of N. J.....1921	21,155	8,094	29,249	25.3	4,730	1,509	738	33.1	201	10.4	8,656	171	341,513	1,666,504
1920	5,111	18,229	23,340	7.5	.....	1,388	734	34.4	308	13.8	10,576	...	346,849	1,518,166
Chicago & Eastern Ill..1921	16,938	2,912	19,850	9.2	4,949	1,412	696	29.7	240	12.8	4,220	159	233,993	1,467,428
1920	9,175	10,746	19,921	8.6	.....	1,462	757	31.1	318	15.2	5,593	...	233,429	1,499,554
C., C., C., & St. L.....1921	17,684	15,379	33,063	11.8	2,617	1,691	747	29.0	461	28.6	6,391	138	758,088	4,620,571
1920	2,981	32,195	35,176	5.7	.....	1,747	848	28.4	517	26.2	7,605	...	750,087	4,700,433
Elgin, Joliet & Eastern..1921	10,101	3,299	13,400	5.6	3,759	2,137	1,127	38.6	226	8.8	3,619	139	(1)	(1)
1920	8,048	7,372	15,420	8.7	.....	2,249	1,243	37.1	444	16.6	8,210	...	(1)	(1)
Long Island.....1921	2,335	3,336	5,671	4.3	1,274	600	227	21.0	52	4.0	743	454	199,478	1,136,821
1920	583	4,583	5,166	2.6	.....	575	238	21.2	60	4.4	782	...	197,721	1,105,164
Pennsylvania System....1921	219,665	67,941	287,606	10.3	76,766	1,769	877	34.3	368	17.4	9,738	136	5,082,701	33,626,081
1920	102,652	215,057	317,709	5.6	.....	1,659	887	33.5	433	18.6	12,673	...	5,360,433	35,506,420
Phila. & Reading.....1921	27,416	10,732	38,148	10.1	8,007	1,696	888	35.8	364	16.4	20,017	183	529,010	2,414,834
1920	6,335	32,150	38,485	3.9	.....	1,835	1,016	37.1	573	22.0	31,898	...	520,546	2,446,128
Pocahontas Region:														
Chesapeake & Ohio.....1921	40,644	11,357	52,001	9.0	5,615	2,280	1,241	43.3	611	24.7	12,480	123	438,100	2,475,912
1920	10,909	24,270	35,179	11.1	.....	2,203	1,219	40.1	969	38.2	13,530	...	432,872	2,446,187
Norfolk & Western.....1921	36,133	5,654	41,787	9.5	4,118	2,217	1,210	43.9	693	27.8	13,111	153	407,363	2,509,531
1920	12,343	19,483	31,826	4.6	.....	2,166	1,215	40.4	949	35.7	13,789	...	399,072	2,542,603
Southern Region:														
Atlantic Coast Line....1921	22,777	7,478	30,255	16.8	.....	1,189	437	19.1	294	24.8	1,820	129	742,481	4,781,963
1920	7,050	27,018	34,068	13.2	.....	1,102	455	20.5	348	24.1	2,424	...	784,075	4,798,927
Central of Georgia.....1921	5,527	3,508	9,035	22.1	.....	1,075	474	24.0	405	25.2	1,919	151	314,567	1,524,353
1920	1,521	6,587	8,108	5.8	.....	1,063	488	23.6	459	25.3	1,946	...	311,543	1,538,095
I. C. (inc. Y. & M. V.).1921	48,138	16,040	64,778	10.1	9,132	1,581	689	27.6	536	31.1	5,641	135	1,480,424	9,186,515
1920	13,003	53,527	66,530	5.4	.....	1,574	725	27.1	727	38.4	7,858	...	1,466,339	9,123,909
Louisville & Nashville..1921	38,884	14,954	53,838	25.2	118	1,102	513	30.6	470	26.2	5,030	168	970,792	5,599,819
1920	13,646	29,712	43,358	10.5	90	1,087	533	29.6	634	32.2	5,476	...	866,212	5,428,727
Seaboard Air Line.....1921	12,199	7,214	19,413	23.7	.....	1,090	421	19.8	287	21.6	1,575	178	577,383	3,349,214
1920	4,137	17,768	21,965	8.5	.....	1,156	508	22.4	381	23.3	2,361	182	556,116	3,093,001
Southern Ry.....1921	40,458	17,554	58,012	11.3	5,383	1,125	443	21.9	290	21.6	2,422	199	1,330,361	7,600,459
1920	15,250	51,415	66,665	4.6	.....	1,231	561	23.3	418	24.3	4,018	...	1,465,807	9,213,236
Northwestern Region:														
C. & N. W.....1921	48,723	20,885	69,608	8.0	6,500	1,117	472	23.1	272	18.2	2,273	194	1,647,224	10,000,349
1920	24,746	57,303	82,049	6.4	.....	1,285	564	24.8	374	22.3	3,836	...	1,637,959	9,807,964
C., M. & St. P.....1921	45,201	16,665	61,866	15.8	4,337	1,312	578	23.7	379	24.2	2,208	159	1,474,064	9,088,034
1920	20,481	59,835	80,316	7.8	.....	1,398	675	24.8	453	24.7	3,423	...	1,428,815	8,734,594
C., St. P., M. & O.....1921	4,254	11,581	15,835	11.1	3,934	885	355	20.0	189	13.1	1,734	188	321,322	1,804,664
1920	1,624	10,457	12,081	8.6	.....	975	460	23.4	417	22.6	2,920	...	313,087	1,863,809
Great Northern 1921	47,201	5,967	53,168	17.7	.....	1,574	748	27.5	304	17.1	2,028	158	989,612	5,808,457
1920	19,204	24,314	43,518	7.7	.....	1,733	913	29.2	607	28.6	3,310	...	960,796	5,918,431
M., St. P. & S. Ste. M..1921	18,423	5,202	23,625	11.3	4,732	1,064	476	22.6	262	16.7	1,464	131	430,334	2,320,961
1920	5,997	14,485	20,482	7.0	.....	1,167	577	23.5	483	26.1	2,339	123	428,162	2,397,789
Northern Pacific.....1921	38,753	6,519	45,272	13.8	11,333	1,607	737	25.5	345	20.1	2,441	137	851,936	5,357,764
1920	14,151	19,146	33,297	8.6	.....	1,598	829	27.4	725	33.4	3,755	130	819,437	5,656,221
Ore.-Wash. R. R. & Nav.1921	4,905	3,244	8,149	3.6	2,180	1,418	698	28.0	500	24.7	1,854	208	256,631	1,645,282
1920	2,807	5,083	7,890	1.9	.....	1,371	729	28.5	754	32.3	2,716	...	238,994	1,626,702
Central Western Region:														
Atch., Top. & Santa Fe.1921	48,884	12,136	61,020	10.8	9,221	1,468	546	20.9	415	30.5	2,593	146	1,650,072	12,205,426
1920	26,624	50,555	77,179	6.0	.....	1,393	585	22.9	443	28.1	3,596	155	1,791,313	13,851,405
Chicago & Alton.....1921	9,891	4,206	14,097	5.2	2,500	1,254	533	26.8	395	25.0	5,513	180	294,214	1,684,337
1920	3,084	10,992	14,076	2.9	.....	1,307	506	23.2	395	25.7	5,499	190	260,025	1,489,339
Chi., Burl. & Quincy...1921	49,449	15,074	64,523	15.3	543	1,577	748	28.9	507	27.9	3,508	156	1,531,270	9,857,146
1920	20,217	51,410	71,627	7.1	.....	1,615	794	27.2	632	32.6	4,865	164	1,427,272	9,526,700
Chi., Rock Isl. & Pac..1921	32,691	15,520	48,211	11.4	9,131	1,164	499	23.7	402	25.8	2,527	164	1,334,291	7,611,285
1920	8,845	43,430	52,275	6.0	.....	1,160	522	23.7	484	28.7	3,306	...	1,275,432	7,790,838
Denver & Rio Grande...1921	13,308	2,036	15,344	9.7	2,864	1,295	629	28.1	235	12.4	1,393	212	229,545	1,622,021
1920	7,996	5,259	13,255	6.3	.....	1,224	644	29.2	443	20.3	2,272	...	224,078	1,650,181
Oregon Short Line.....1921	7,931	2,651	10,582	6.6	2,540	1,343	646	29.2	504	25.8	2,260	141	299,089	2,055,561
1920	3,562	5,364	8,926	2.6	263	1,393	730	29.3	1,063	47.6	4,034	134	266,756	2,014,476
Southern Pacific.....1921	22,937	20,556	43,493	10.3	7,419	1,572	647	23.8	504	32.4	3,144	154	1,407,974	11,012,137
1920	12,586	29,912	42,498	4.6	.....	1,532	704	25.1	678	37.1	4,132	156	1,462,241	11,812,662
Union Pacific.....1921	21,143	6,033	27,176	24.4	6,949	1,659	749	23.4	595	33.3	4,471	152	868,092	7,245,899
1920	6,484	12,735	19,219	7.1	.....	1,520	723	23.9	1,341	70.1	7,133	161	849,698	7,269,139
Southwestern Region:														
Gal., Harrish'g & S. An.1921	(2)	(2)	(2)	(2)	(2)	1,230	517	24.7	(2)	(2)	2,736	128	189,886	1,303,891
1920	(2)	(2)	(2)	(2)	(2)	1,342	609	25.3	(2)	(2)	4,192	113	167,545	1,322,885
Gulf, Colo. & Santa Fe..1921	153	12,331	12,484	4.9	599	1,384	616	26.0	443	26.8	2,917	136	196,575	1,131,876
1920	152	13,843	13,995	7.2	.....	1,246	580	24.8	332	18.4	2,452	...	199,153	1,300,372
Missouri, Kans. & Tex..1921	8,822	4,528	13,350	8.1	2,275	1,499	603	23.0	341	24.6	2,661	144	272,192	1,933,692
1920	3,760	11,680	15,440	7.2	.....	1,443	594	22.2	436	30.3	3,932	...	306,146	2,124,562
Mo., Kas. & Tex. of Tex.1921	369	12,171	12,540	4.6	1,153	1,186	478	24.0	264	18.6	1,904	154	277,030	1,721,113
1920	314	13,050	13,364	5.2	.....	1,002	427	23.3	275	17.8	2,113	...	311,378	1,955,028
Missouri Pacific.....1921	33,483	16,486	49,969	10.0	7,104	1,325	607	25.7	405	22.8	2,786	148	948,011	5,569,097
1920	11,461	44,612	56,073	3.6	.....	1,369	677	26.6	468	23.0	3,610	...	899,770	5,265,648
St. Louis-San Francisco.1921	21,474	9,376	30,850	6.3	.....	987	425	24.5	314	19.7	2,033	204	783,047	4,445,069
1920	9,097	27,814	36,911	5.3	.....	1,025	474	26.3	379	21.3	2,941	185	785,053	4,642,318
Texas & Pacific.....1921	6,383	5,044	11,427	19.8	.....	1,202	478	21.6	354	25.0	2,069	149	318,278	1,999,327
1920	2,964	12,567	15,501	9.1	.....	1,176	499	23.0	363	22.6	2,894	154	320,420	2,096,536

[1]No passenger train service. [2]Data not available. Compiled by the Bureau of Statistics, Interstate Commerce Commission.

Heavy Holiday Traffic at New York

The movement of passengers in and out of New York at the time of the Fourth of July holidays is believed to have been the greatest on record. At least the figures of passengers who passed through Grand Central Station and the passenger traffic figures of the Long Island Railroad point in that direction. During the week ending July 7 a total of 717,089 passengers arrived and departed through the Grand Central Station. The largest business was handled on Friday, July 1, when 136,561 passengers arrived and departed. The exceptionally heavy business in addition to the crowds leaving the city for the holiday has been ascribed to the movement of passengers who attended the Carpentier-Dempsey fight. The greatest number of trains was handled on July 2, when 5,098 cars, in 679 trains, entered and left the station. This figure shows that 257 more cars were used than on the similar day in 1920.

The Long Island handled a total of 1,633,900 passengers in the five-day period including the holidays. The largest business was on July 4, when 370,400 passengers were carried. Some of the Long Island's traffic statistics given in the following table for previous years give some measure of the increased business.

Figures for five days—	1918	1919	1920	1921
Passenger train movements.	4,857	5,179	5,470	5,705
Passenger car movements....	26,519	30,674	31,054	32,835
Baggage car movements....	1,342	1,481	1,353	1,264
Passengers carried	1,121,560	1,433,600	1,569,800	1,633,900

Railway Returns for May

The Interstate Commerce Commission's summary of revenues and expenses for 203 class I roads, for May and five months, is as follows:

Item No.	Item	May 1921	May 1920	Five Months 1921	Five Months 1920
1	Average number of miles operated..	235,592.68	235,175.88	235,592.75	234,723.57
	Revenue:				
2	Freight .....$	313,057,371	$314,147,944	$1,547,860,564	$1,518,840,239
3	Passenger	[1]93,516,961	98,901,390	[2]475,351,696	459,006,233
4	Mail	7,829,078	7,765,173	41,429,429	93,324,866
5	Express	6,960,929	13,129,574	34,067,352	62,257,845
6	All other transportation	13,442,177	11,455,701	64,103,531	54,882,408
7	Incidental	9,633,699	11,738,423	49,854,098	56,099,025
8	Joint facility—Cr	627,983	599,860	3,257,891	2,937,905
9	Joint facility—Dr	193,109	179,000	970,965	934,400
10	Railway operating revenues .	444,875,089	457,559,065	2,214,953,596	2,246,414,121
	Expenses:				
11	Maintenance of way and structures	65,089,327	88,981,644	301,690,485	353,247,451
12	Maintenance of equipment	101,137,808	116,395,011	542,843,905	580,533,463
13	Traffic	7,207,309	5,454,958	36,057,393	25,556,965
14	Transportation .	189,107,818	209,257,948	1,012,692,009	1,045,980,868
15	Miscellaneous operations	3,892,733	4,973,361	20,717,886	22,898,674
16	General	14,169,471	13,020,652	73,345,106	63,992,218
17	Transportation for investment—Cr.	563,232	253,816	2,653,591	1,307,342
18	Railway operating expenses..	380,041,234	437,829,758	1,984,693,193	2,090,902,297
19	Net revenue from railway operations	64,833,855	19,729,307	230,260,403	155,511,824
20	Railway tax accruals	22,415,730	23,032,592	112,959,526	110,216,113
21	Uncollectible railway revenues..	102,469	87,506	424,083	444,821
22	Railway operating income....	42,315,656	3,390,791	116,876,794	44,850,890
23	Equipment—Dr. balance....	3,977,689	562,036	19,230,452	10,705,190
24	Joint facility rent—Dr. balance..	1,257,313	1,476,942	7,314,221	7,745,590
25	Net of items 22, 23 and 24....	37,080,654	5,429,769	90,332,121	26,400,110
26	Ratio of expenses to revenues (per cent)	85.43	95.69	89.60	93.08

[1]Includes $2,744,334, sleeping and parlor car surcharge.
[2]Includes $13,128,190, sleeping and parlor car surcharge.

Meeting of Protective Section of the A. R. A.

The Protective Section of the American Railway Association met at the Hotel Pennsylvania, New York, on July 14 and 15. Among the principal speakers were R. H. Aishton, president of the American Railway Association; General W. W. Atterbury, vice-president of the Pennsylvania, and E. J. Pearson, president of the New York, New Haven & Hartford. The general theme of all was the recognition by the railroads of the necessity for closer co-operation between the police departments of the railroads and state and federal authorities.

The heavy losses chargeable to robberies was emphasized. From September of last year to March of this year the loss from this source was in excess of $3,000,000. It was said that the shipment of liquor was causing trouble to the railroads, and that the losses through these shipments were soaring each month. It was said it took more police to guard those trains than to handle any other kind of shipment of like value.

The advisability of having the railway police commissioned by the states or by the federal government was discussed. A terminal police association in all large cities, to work with the Protective Section, and a more uniform method of handling witnesses and the expenses of getting evidence were advocated.

More prompt reports on loss when noted and a strict surveillance of auction rooms where stolen material is sometimes placed for sale were also advocated as methods of reducing this loss. A more uniform method of handling witnesses with expenses for obtaining evidence and other kindred matters were discussed. It was contended that an educational campaign should be instituted to teach shippers the importance of crating their goods in a more serviceable manner and in stronger containers to avoid their being broken into. It was urged by some of the members that robberies of freight be first reported to the local police by the railroad agents or other employees instead of to railroad officials.

Commission to Investigate Grain Rates

The Interstate Commerce Commission, on petition of the Kansas Public Utilities Commission, which was joined by a number of other western state commissions, has ordered, upon its own motion, a proceeding of investigation into the reasonableness and propriety of the level of interstate rates on grain, grain products and hay, in carloads, in the western territory, with a view to prescribing such reasonable rates as the facts and circumstances may appear to warrant. No testimony will be admitted with respect to the relationship between particular points under the existing rates. A hearing has been set for August 15 at Washington before Commissioner Lewis. The Kansas commission asked for a reduction of the increase put in effect last summer on the ground that it is ruining business in the west and a number of western commissions have combined to prosecute the case. A similar investigation was undertaken by the commission on formal complaint of the western livestock interests and expedited so that the oral argument was heard on July 15. The two proceedings thus bring into question the matter of proposed reductions of the advances on two of the most important classes of traffic for the western lines.

Scrapped Because of Excessive Size When Seven-foot Gage Was Abolished. Great Western, England, 1892.

Traffic News

The Detroit, Toledo & Ironton filed a freight schedule with the public utilities commission of Ohio on July 18, providing for a 20 per cent reduction in rates between all points on its line but not affecting connecting line rates.

Members of the Southern Hardwood Traffic Association voted unanimously in favor of filing an immediate complaint with the Interstate Commerce Commission against the present excessive freight rates on logs, lumber, cooperage and other forest products at Memphis, Tenn., on July 12.

The Railroad Commission of the state of California on July 13, on its own volition, directed an order to river transportation companies to show cause why increases granted last year should not be cancelled and the old rates restored. The order applies to all river lines operating on the Sacramento and San Joaquin rivers and their tributaries and on San Francisco Bay. The hearing is set for July 20.

The decision of the State Railroad Commission of California, making a substantial reduction in charges and rates for switching in the South San Francisco industrial zone, has been extended to include the Oakland-Alameda, Oakland-Berkeley and Berkeley-Emeryville switching territories, making a total of six large industrial zones now on an equality as to distances and rates, with the same substantial reductions in charges.

Executive officers of the Eastern roads leading into Chicago, on July 14, finally approved an agreement to allow the Erie, Wabash and the New York, Chicago & St. Louis a differential passenger rate east of the Mississippi river. While the new agreement will not authorize differentials between many points that enjoyed the lower rates before the war, nearly all of the main points will be restored to the lower level. Before the war there were no differentials rates from St. Louis to the east, but according to the new arrangement they will prevail out of that city on the Wabash and any road that operates through cars in connection with the Erie, Wabash and Nickel Plate. The agreement will go to the Interstate Commerce Commission in a few days, and if promptly approved, the tariff should be ready by September 1.

The Interstate Commerce Commission has rendered its decision in the Kansas intrastate rate case, ordering an increase of the state rates by the percentages applied last year to interstate traffic except on petroleum products. The Kansas commission had allowed increases somewhat less than the interstate increases on the ground that many of the Kansas intrastate rates were already on a higher basis than the interstate rates. Commissioners Eastman, Campbell and Lewis dissented, the two former on the ground that the commission's jurisdiction had not been sufficiently increased under the transportation act to authorize it to step in and order increases in state rates in the circumstances, and the latter on the ground that the majority opinion in this case carries the doctrine of federal authority to unjustified extremes.

Utilities Urged to Buy Coal

Secretary Hoover of the Department of Commerce has written a letter advising public utility companies to buy their winter coal supply as early as possible instead of waiting for lower prices, saying that he is convinced that, due to the general depression, the prices of bituminous coal at the mines are not too high at the present time. "If there should be a recovery of business activities in the Autumn," he said, "taken in connection with the large increase in the percentage of disabled cars and the inability of the railways to finance their maintenance, there are possibilities of developments of a most serious situation as regards coal movement. I cannot but feel that the Interstate Commerce Commission, in the face of warnings they have sent out in this connection, would not be disposed to give any priority in such an event."

Commission and Court News

Interstate Commerce Commission

The commission has reopened for further hearing part of an application filed by R. H. Countiss, as agent, for authority to continue rates on wool in sacks and in bales from Pacific Coast terminals to Atlantic Seaboard territory and points intermediate lower than from intermediate points of origin.

The Interstate Commerce Commission has authorized F. A. Leland, as agent for the southwestern lines, to file on five days' notice tariffs reducing the rates on lumber from the southwest to points in Kansas, Nebraska, Iowa and border points in Minnesota, but not the principal gateway points, to meet the recent reduction in rates on lumber from the northwest.

State Commissions

The Railroad Commission of the state of California, on June 30, denied the petition of the Southern Pacific for a rehearing in the South San Francisco switching cases, and the decision of May 13 stands. By this decision the three big industrial centers of the state—San Francisco, Oakland and Los Angeles—were placed on an equal footing as to switching charges. The charges are uniform, being 37½ and 50 cents a ton depending on the distances cars are moved. The rate from South San Francisco to San Francisco was reduced from 80 to 50 cents. The railroad had proposed a rate of 70 cents.

Regulation of Wire Crossings

The general assembly of the state of Ohio has enacted a law which will go into effect on September 6, authorizing the public utilities commission of the state to determine the "standard of maintenance and operation, and also the nature, location and character of the construction to be used where telegraph, telephone, electric light, power or other electric wires of any kind cross, or more or less parallel, the line of a railroad, interurban railway or other public utility." The bill further gives power to the commission to act upon complaints by the carriers and interurban railways when their properties are injured by these lines.

Illinois Commerce Commission Bill

The law regulating public utilities in the state of Illinois, which was known as the State Public Utilities Commission Act, was superseded on July 1, 1921, by a new law, known as the Illinois Commerce Commission Bill under which the name of the commission is changed to the "Illinois Commerce Commission." This law provides that the number of commissioners be increased from 5 to 7; assistant commissioners are created not to exceed 8 in number and each is to receive a salary of $5,000; other employees, such as assistant commissioners, accountants, engineers, experts and one private secretary to each commissioner and assistant commissioner, are exempted from the civil service, while branch offices of the commission may be established at places other than the seat of government. Any railroad or transportation company may, by the terms of the new law, grant reduced rates for the transportation of any materials to be used in the construction, maintenance or repair of public highways. The act provides that any party to a proceeding before the commission, may inspect the records of all hearings or inquiries and submit suggestions as to other matters to be investigated, whereupon if the commission sees fit, it may require questions propounded to be answered and if the utility to whom the inquiries are directed shall refuse to comply, the commission shall refuse relief if that utility is the one seeking it, or may grant the relief prayed for by the opposing party if such utility is defended; it is further provided that a re-hearing may be applied for within 30 days after the service of an order. The commission must grant or deny the application for a re-hearing within 20

days, while no appeal lies from an order of the commission, unless and until an application for a re-hearing thereof shall first have been filed and acted upon by the commission; cities are given the right by the new law to appear as complainants in any investigation relating to rates or services of utilities operating within their limits; appeals from orders and decisions of the commission shall be taken to the circuit or superior court of the county in which the subject matter of the hearing is situated rather than to the Circuit Court of Sangamon County; Article VI (Local Utilities) is entirely new and provides that any city may, with respect to any utility (except trunk line railroads), furnishing service within its limits, exercise power and jurisdiction over the rates, service and extensions of such utility, in substantially the same manner, and to the same extent, that the powers of the Illinois Commerce Commission are exercised. The matters of accounts and the issuance of securities, however, are left under the jurisdiction of the commission. This question of so-called home-rule is to be submitted to the electors of any city at certain general elections upon the petition of 25 per cent of the legal voters thereof, and requires a majority vote for adoption. The article further provides that any utility dissatisfied with any action of the city may appeal to the Illinois Commerce Commission for a review of the city's order.

Personnel of Commissions

Charles F. Staples, who has been appointed acting director of the Bureau of Valuation of the Interstate Commerce Commission, succeeding C. A. Prouty, deceased, has been associate director of the valuation bureau and has been connected with it since the Division of Valuation was organized in 1914, when he resigned as a member of the Minnesota Railroad and Warehouse Commission to become a member of the advisory board of the division. Mr. Staples was born August 4, 1856, at St. Paul, Minn. He was educated in common and private schools and later taught school for three years. He was a practical farmer and dairyman for 15 years and for 10 years was engaged in banking. He was a member of the school board of St. Paul for 26 years, chairman of the town board for 10 years and chairman of the board of county commissioners for four years. He was elected a member of the lower branch of the Minnesota legislature in 1892 and re-elected for three successive terms. He was elected a member of the railroad and warehouse commission in 1900 and was several times re-elected.

Court News

Need Not Inspect Car Used by Consignee in Intraplant Service

While a carrier's duty of inspection of cars includes, in some instances, a duty to an employee of the consignee, it would seem that it does so only when a duty of the consignee to exercise like care for its employee has not arisen. When a duty of inspection by another than the carrier arises after unloading—as where a consignee takes over a car for its own purpose, a purpose entirely dissociated from that for which it had been delivered by the terminal carrier in the discharge of its business—and the one owing that duty fails to perform it, that breach of duty, intervening between an injury to an employee of the consignee and a previous breach of a like duty at one time owed by the carrier, is the proximate cause of the injury. When a consignee assumed full control over a car, put it in its intra-mill transportation service, and there used it for 48 days between the day it was unloaded and the day of injury to an employee, the Circuit Court of Appeals, Third District, holds that the consignee assumed the duty of inspection for the protection of its employees, and the railroad's responsibility for its failure previously to inspect and discover a defect not secret ceased. The railroad's liability to the employee also ceased, unless it assumed a duty of inspection after delivery. Collection of demurrage on the car was not proof that the railroad knew the car was being used in intra-mill traffic, so as to make it liable for its unfitness for such traffic.—West Jersey & Seashore v. Cochran, 266 Fed. 609.

Foreign Railway News

Consulting Engineer Appointed for Bolivian Construction

Fred Lavis, consulting engineer, with offices at New York, has been appointed consulting engineer to the Bolivian government and the Ulen Contracting Corporation in connection with the construction of the Atocha-Villazon railway line, some details of which were published in the *Railway Age* of July 16 (page 133). Mr. Lavis expects to sail for Bolivia early in August.

American Loan for Brazilian Railways

According to Commerce Reports, the Brazilian press reports that the state of Rio Grande do Sul has entered into negotiations with New York bankers for a state loan of between $10,000,000 and $30,000,000. The funds thus acquired will be spent in improving the railway systems of the state and in completing the port works of Porto Alegre, both of which are state property.

Great Reduction in Traffic on British Railways

In March of this year the railways of Great Britain hauled 22,783,195 tons of freight, a decrease of 8,614,037, or 27.44 per cent, when compared with the same month last year. Ton miles handled were 1,272,873,399, or a decrease of 29.72 per cent from the total of March of last year. The average receipts per ton mile, exclusive of collection and delivery charges, were 4.186 cents. The heavy decline in traffic affected the operating results adversely—the average tonnage per car was 5.23, as compared with 5.49 tons for March last year, and the average train load was 123.52 tons, as compared with 136.06 for March, 1920.

New Zealand Railways Make Good Showing

The returns of the New Zealand Government Railways for the fiscal year ended March 31, 1921, have just been announced, and show that the railways experienced another good year, according to Consul General Wilber at Auckland. The revenue amounted to $33,620,361 (normal exchange), as compared with $27,994,478 for the fiscal year 1920, with expenditures at $27,430,514 against $19,977,308, leaving a net revenue of $6,189,847, as compared with $8,017,170. The number of passengers carried during the year was 15,315,614, as compared with 12,760,814 for the preceding year, a gain of 2,554,800. Freight carried totaled 6,085,360 tons, being an increase of 488,128 tons.

An Important African Project

During the war the South African—Rhodesian—Congo trunk line was pushed northward to Bakuma, in the Belgian Congo, on the navigable Congo river, providing through-rail connections with South African ports. To link the Atlantic coast to the west with Bakuma a line from Lobito bay, in Angola, westward to Bakuma, was projected. Before the war this railway was completed to Chinguar, a distance of 322 miles, and the roadbed was completed to Bié, 66 miles farther. Recently track laying has commenced on this section, which will soon be ready for service. Financial arrangements for the completion of the line from Bié to Bakuma are now under discussion, according to the Times (London) Engineering Supplement. The Benguella Railway, as this line is called, will be 1,155 miles in length from the Atlantic coast to its junction with the trunk line from Capetown, just south of Bakuma. The railway when completed will provide the shortest route from the interior to the coast.

A great part of the mileage of this line will be through mountainous country which will necessitate some sharp curves and heavy grades. On the existing line there is a short section of rack rail which it is proposed to eliminate. The road is of 3 ft. 6 in. gage—the same as that of the South African Railways.

Operating Results of the French Railways In 1920 as Compared With 1913

The Minister of Public Works of France has recently published some very interesting statistics on railway operations in that country. The operating results of the six large railways are shown in Table I for 1920, and compared with those for the year 1913, the last normal pre-war year.

The 486 per cent increase in the railway expense account in 1920 as compared with 1913 is attributed to the increased cost of labor, materials and fuel. In Table II is shown the number of employees and their compensation for the year 1913 as compared with 1920.

The total increase in the number of employees in 1920 as compared with 1913 is 40.6 per cent, while the total compensation paid employees during the same period increased 319.2. This increase in compensation does not include the cost of living and family indemnities, nor does it allow for certain conditions brought about by the installation of the eight-hour day. In addition, the average price per ton paid for coal by the railways in 1913 was $4.63, as compared with $46.51 in 1920, which represents an increase of over 900 per cent. Rails in 1913 were $34.74 per ton, ties $0.98 apiece, while in 1920 the roads were obliged to pay $161.15 per ton for rails and $4.05 apiece for ties.

The true measure of traffic is not the number of cars moved, but the ton-miles, and the operations of some of the individual French roads indicate that there has been an increase in the ton-miles in 1920 as compared with 1913, even though the number of cars moved per day have decreased. This condition is a result of greater carloads and longer hauls during the year 1920. The French roads are now exerting every effort to care for the increased traffic, in spite of the increased prices they are compelled to pay for material and fuel.

The *Railway Age* is indebted to the Bureau of Railway Economics for supplying the above information, which was obtained from the Revue Politique et Parlementaire.

TABLE I—OPERATING RESULTS

Items	Northern	Eastern	Paris, Lyons & Mediterranean	Paris-Orleans	Midi	State	Total All Roads 1920	Total All Roads 1913
				(In thousands)				
Operating revenue	$167,524	$139,346	$306,484	$176,016	$77,586	$176,402	$1,043,358	$390,246
Expenses	234,688	169,647	355 699	239,320	111,554	277,148	1,388,056	236,311
Net operating revenue	d67,164	d30,301	d49,215	d63,304	d33,968	d100,746	d344,698	153,435
Charges	43,618	34,354	66,778	31,459	15,054	39,758	231,021	168,682
Net operating income	d110,782	d64,655	d115,993	d94 763	d49,022	d140,504	d575,719	d15,247
OPERATING RATIOS								
Year 1920	140.0	121.7	116.0	135.2	148.0	157.0	136.0	62.8
Year 1913	61.3	60.6	57.0	59.0	55.0	85.4	...	...

d Denotes deficit.

TABLE II—EMPLOYEES AND COMPENSATION

Road	Number of employes 1913	Number of employes 1920	Per cent increase 1920 over 1913	Compensation 1913 (In thousands)	Compensation 1920 (In thousands)	Per cent increase 1920 over 1913
Northern	53,053	76,909	45.0	$23,372	$101,325	335.7
Eastern	54,259	75,326	38.8	22,002	90,710	312.3
Paris, Lyons & Mediterranean	81,000	118,577	46.4	40,337	154,400	282.8
Paris & Orleans	50,338	72,179	43.4	18,335	94,570	415.8
Midi	27,489	35,331	28.5	8,357	46,127	696.8
State	78,805	106,586	35.3	31,459	115,993	268.7
Totals	344,944	484,908	40.6	143,862	603,125	319.2

Locomotive Exports in May

May showed some improvement in the number and value of locomotives exported, largely due apparently to a movement of 62 to Mexico. The month's total was 109, valued at $2,647,441. The detailed figures by countries, as compiled by the Bureau of Foreign and Domestic Commerce, follow:

Countries	Number	Dollars
Canada	1	5,115
Mexico	62	1,433,280
Cuba	7	193,891
Argentina	6	226,500
Peru	1	26,837
Chosen	2	27,060
Straits Settlements	20	496,000
Dutch East Indies	3	30,850
Japan	1	12,875
New Zealand	1	14,958
Philippine Islands	5	180,075
Total	109	2,647,441

Proposed New Railroad in Jugoslavia

According to Consul A. R. Thomson at Zagreb, Jugoslavia, a local concern has been granted authority to build a 25 mile railroad through a rich agricultural and mining country from Cernomelj, Slovenia, to Generalski Stol, Croatier. This road will form a connecting link between two important lines and the promoters believe that with the prevailing premium on the dollar it offers an important opportunity for the investment of American capital and a consequent assured market for railway equipment and supplies.

New Officers for South Manchuria Railway

The president of the South Manchuria Railway, Dr. R. Nomura, and the vice-president, S. Nakanishi, some time ago presented their resignations and S. Hayakawa, a Japanese business man and banker, has been elected to the presidency, according to the Trans-Pacific (Tokyo). The former officers resigned, it would seem, while under suspicion of certain irregularities in the management and it is said that Mr. Nakanishi is being prosecuted under the charge of breach of trust in connection with the purchase by the company of a large colliery at what would appear to be an exorbitant price. It is expected that the new president will make many changes in the executive personnel of the road. The South Manchuria Railway Company was organized in 1906 to take over the railways ceded to Japan at the end of the Russo-Japanese War, and the Japanese government owns a large block of its capital stock. The road has an improvement program before it involving the expenditure of some $210,000,000 in the next four years.

Prospective Construction in Mexico

The British capitalists interested financially in the Kansas City, Mexico & Orient, in Mexico, who spent some time in Chihuahua recently going over the road, expressed themselves as well pleased with the prospects, and they returned to London with the avowed intention of arranging for the immediate expenditure of many millions of dollars in the completion of the road, according to the information published in Commercial Mexico. A careful study has been made of the entire situation in Mexico, and the visitors left with an optimistic belief that stable conditions have returned to that part of the country which for nearly ten years has been scourged by civil war, and that now is the time to undertake work on railroads and those other public utilities so badly needed for the development of the immense resources of the State of Chihuahua.

The original concession of the K. C. M. & O. calls for the building of the line to connect Kansas City, by way of Chihuahua, with the Pacific coast port of Topolobampo in the state of Sinaloa. The completion of this line would bring Chihuahua into prominence as a railroad center, as the road would cross the lines of the Mexico Central, which runs from Juarez, on the Mexican

border, to the City of Mexico, and would also cross the line of the Southern Pacific of Mexico as it passes through the state of Sinaloa. It would place Chihuahua in direct touch with Kansas City, Chicago and the Middle West, and would make it the marketing center for a large and fertile portion of Northwestern Mexico.

The completion of the line to the Pacific Coast involves many engineering difficulties. The building will be expensive, as there are gorges and passes in the rough slope of the Sierra Madre which will have to be bridged before the gentle Pacific slope is reached, and it is believed that the work, if undertaken now, will not be completed within three years. The road will open up rich lumber and mining country, with immense possibilities for development. Western Chihuahua and the highly mineralized valleys of Sierra Madre have been neglected in the past because of the lack of transportation facilities.

The representatives of the British stockholders of the Orient were enthusiastic as to the future of the line, and while it was stated that nothing definite could be said at present as to the prospects of commencing work of building to Topolobampo in the immediate future, it seems reasonably certain that the work of linking up the line between Falomir and Alpine will be begun as soon as the necessary financing can be arranged in London.

Exports of Car Wheels and Axles

Each month shows a further decline in the exports of railway equipment. May exports of car wheels and axles were valued at $207,966, as against $304,659 in April. The detailed figures by countries as compiled by the Bureau of Foreign and Domestic Commerce, follow:

Countries	Dollars
Norway	7,690
England	196
Canada	38,639
Costa Rica	565
Honduras	915
Mexico	8,724
Cuba	7,700
Virgin Islands of United States	87
Argentina	123,162
Brazil	7,018
Chile	1,346
Colombia	334
Ecuador	1,011
Venezuela	277
British India	1,088
Straits Settlements	282
Dutch East Indies	400
Japan	1,765
Australia	697
Philippine Islands	4,000
Portuguese Africa	2,070
Total	207,966

May Car Exports

Further declines in the exports of cars are shown by the May figures. No passenger cars were shipped and only 465 freight cars, valued at $639,454. The detailed report by countries, as compiled by the Bureau of Foreign and Domestic Commerce, follows:

Countries	Freight and other cars. Number	Freight and other cars. Dollars	Parts of cars. Dollars
Germany	...	.....	259
Netherlands	...	.....	46
England	...	.....	227
Scotland	...	.....	1,675
Canada	10	15,000	40,545
Costa Rica	...	.....	43,081
Guatemala	...	.....	48
Honduras	58	74,896	22,367
Mexico	105	138,630	19,335
Newfoundland and Labrador	...	.....	190
Jamaica	...	.....	363
Cuba	66	140,617	41,178
Dominican Republic	...	.....	3,469
Argentina	...	.....	1,750
Brazil	21	28,716	43,954
Chile	...	.....	9,009
Colombia	...	.....	4,665
Ecuador	...	.....	3,497
Peru	56	6,442	.....
China	...	.....	646
Chosen	...	.....	12,645
British India	...	.....	109,631
Dutch East Indies	76	14,201	7,911
Hongkong	20	15,000	460
Japan	...	.....	18,820
New Zealand	3	19,472	.....
Philippine Islands	...	.....	11,256
British South Africa	...	.....	8,396
Portuguese Africa	50	186,480	.....
Total	465	639,454	405,423

Equipment and Supplies

Locomotives

THE MIDLAND TERMINAL is inquiring for 1, 2-8-8-2 Mallet type locomotive.

Freight Cars

THE MAINE CENTRAL is asking for prices on 200 steel center constructions.

THE CHICAGO GREAT WESTERN is in the market for repairs on 175 to 200 box cars.

THE NORTHERN PACIFIC is asking for figures on 1,000 steel center sills and 1,000 underframes.

THE CHICAGO & NORTH WESTERN is asking for prices on the repair of from 1,000 to 5,000 freight cars.

THE BUFFALO, ROCHESTER & PITTSBURGH is asking for prices on the repair of from 500 to 1,000 freight cars.

THE ILLINOIS CENTRAL has contracted for the repair of 400 gondola cars with the Haskell & Barker Car Company.

Track Specialties

THE NEW YORK CENTRAL will receive bids until 12 o'clock noon, August 1, for its present requirements of track bolts, track spikes, angle bars, tie plates, frogs, switch points and switches, switch plates, crossing frogs, terminal stud track bonds, guard rails, knuckle rails and movable points for crossings.

Machinery and Tools

DWIGHT P. ROBINSON & COMPANY, INC., New York, is inquir- for lathes, planers, shapers, rail drills, and blacksmith shop machinery for export to Brazil.

Miscellaneous

THE GREAT NORTHERN is inquiring for 136,000 bolts.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 200,000 bolts.

THE LONG ISLAND will receive bids until 2 p. m., July 25, for 750,000 to 800,000 gallons fuel oil of a density from 14 deg. to 16 deg. Baume.

THE CHICAGO & NORTH WESTERN will accept bids until 12 o'clock, noon, July 29, for 34,000 gallons of burner oil in barrels; 6,000 gallons of burner oil in tank cars, and 15,000 gallons of mineral seal oil in barrels.

THE NEW YORK CENTRAL will receive bids until 12 o'clock, noon, August 2, for a minimum of 600,000 gal. and maximum of 800,000 gal. of Asphaltum base fuel oil with gravity of 18-20 deg. Baume, cold test 10 degrees.

THE NORFOLK & WESTERN will receive bids on July 27, at Roanoke, Va., for 116,711 lbs. steel plates; 75,000 lbs. steel bars; requirements of the railroad of Mazda incandescent electric lamps for one year from August 1, 1921; parts for electrical apparatus and electrical material.

THE NEW YORK CENTRAL will receive bids until 12 o'clock noon, August 3, for its shop requirements until September 1, 1921, on black galvanized and blue annealed sheets, driving and truck tires for freight and passenger service, seamless steel tubes, car and tender axles, car axles for axlelight system, driving and trailer truck axles, front engine truck axles, standard wire nails, galvanized and polished fence staples, steel bars, steel shapes and steel plates, galvanized tie dating nails, bridge warning poles and woven wire fence.

Supply Trade News

Theodore L. Dodd & Co., Chicago, have been appointed district sales agents of the middle west for the **Foster-Songer Company,** Pittsburgh, Pa.

The **Miller Train Control Corporation,** Danville, Ill., has opened offices in the Riggs building, corner Fifteenth and G streets, N. W., Washington, D. C.

E. J. Brennan, formerly superintendent of motive power, Lines East, of the Chicago, Milwaukee & St. Paul, is now sales manager for **The Rogotchoff Company,** Baltimore, Md.

Edgar L. Keithley has established an office at 1323 Alaska building, Seattle, Wash., as a representative of **The Central Foundry Company,** New York, makers of universal cast iron pipe, soil pipe and general castings.

The **Canadian Chicago Bridge & Iron Company, Limited,** of Bridgeburg, Ont., and Montreal, Que., has changed its corporate name to **Horton Steel Works, Limited.** The new name has been selected in honor of the late Horace E. Horton, who founded the Chicago Bridge and Iron Works in the United States in 1865.

The Universal Packing & Service Company, Chicago, in addition to handling spring journal box packing, has enlarged its organization to take care of the railroad field and mid-western commercial field for the development and sale of Rawlplugs, a device which enables an ordinary screw to hold in any material. **The Rawlplug Company** has its offices at 461-475 Eighth avenue, New York City.

The Du Pont Company, Wilmington, Del., has developed a formula for the manufacture of straight dynamite which results in that explosive being proof against freezing even in zero temperatures. The new explosive has been fully tested and proved and the formula for making it has been made standard in all the plants of the company producing dynamite. As a consequence of this development the company has determined to discontinue the manufacture of its former straight dynamite and hereafter all this kind of explosive will be made by the new low-freezing method.

E. C. Richardson, manager of the **Western Electric Compania Italiana, at** Rome and Milan, since 1910, and who also saw foreign trade service at Antwerp, has been transferred to Peking, China, as general manager of the **China Electric Company,** the Far Eastern subsidiary of the **International Western Electric Company,** New York. He succeeds **C. H. Minor,** who has supervised the operations of the China Electric Company ever since it started business early in 1918. Mr. Minor is returning to the European organization of the International company, with headquarters at London.

Alfred L. Kuehn, vice-president in charge of operation of the **American Creosoting Company,** of Louisville, Ky., has been elected president of the company, succeeding the late Alvin T. Hert, effective June 21. Mr. Kuehn was born on August 16, 1877, at Chicago, and was educated at the University of Illinois, from which institution he graduated in 1900. In 1892 he entered railway service as a clerk and operator on the Illinois Central and was later a clerk in the machinery department. On June 1, 1898, he was appointed assistant engineer on the Wheeling & Lake Erie, a position he held until December, 1898. From June 1 to October 1, 1899, he was assistant engineer on the Chicago Drainage Canal. During the next year he was appointed assistant engineer on the Chicago & Alton and thereafter served as assistant engineer on the Cincinnati, Richmond & Muncie. In 1902 he was appointed engineer maintenance of way on the Chicago, Cincinnati & Louisville. Two years later he was appointed engineer maintenance of way of the Michigan division of the Cleveland, Cincinnati, Chicago & St. Louis, and in 1905 was transferred to the Chicago division, with headquarters at Indianapolis, Ind. Four years later Mr. Kuehn was appointed general superintendent of the American Creosoting Company, a position he held until 1918, when he was promoted to vice-president in charge of operation, the position he held at the time of his recent appointment.

Waterbury Battery Company

The Waterbury Battery Company, Waterbury, Conn., has completed a reorganization of its officers and directors, which has been occasioned by the deaths of Charles B. Schoenmehl and E. E. Hudson. The officers of the company are now **Martin L. Martus,** of Waterbury, Conn., president; **G. A. Nelson,** vice-president and general sales manager at New York; **Francis T. Reeves, treasurer,** and **Harold B. Schoenmehl,** secretary, both at Waterbury. The directors are: **Francis T. Reeves, Martin L. Martus** and **Darragh De Lancey.**

Martin L. Martus, who has been elected president, has been associated with the company since April, 1911; for the past nine years as secretary and factory manager. He was born in New Haven, Conn., and became associated with the Scovill Manufacturing Company in 1901. In 1906 he was chief engineer for one of the subsidiary plants of The American Brass Company, and in 1911 became associated with The Waterbury Battery Company as factory manager, which position he has held until the present time.

Judge Francis T. Reeves, treasurer, was born in Thomaston, Conn., and has been a director of The Waterbury Battery Company since October, 1916, and its general counsel since 1914. He is director and trust officer of The Manufacturers National Bank, of Waterbury, Conn., and is a practising attorney in Waterbury.

Harold B. Schoenmehl, the newly elected secretary, is the eldest son of the late Charles B. Schoenmehl. He has been associated with the Waterbury Battery Company for the last six years, engaged in laboratorial and experimental work.

Darragh De Lancey, the newly elected director, was formerly president of the Waterbury Chamber of Commerce and during the late war served with the War Department and the United States Shipping Board.

Obituary

Alvin T. Hert, president of the **American Creosoting Company** of Louisville, Kentucky, and chairman of the board of directors of the American Tar Products Company, who died on June 7, was born at Owensburg, Ind., on April 8, 1865. Mr. Hert started his business career in his father's store at Owensburg and thereafter was engaged in the general merchandising business until 1894, when he was appointed general superintendent of the Indiana reformatory, a position he held until 1903. In 1904 Mr. Hert was a principal in the organization of the American Creosoting Company, which at that time started its first plant at Shirley, Ind. Shortly thereafter Mr. Hert was elected president of the company, which today, with its affiliated companies, operates 17 plants in various parts of the country. From 1916 to 1920 inclusive, he was a member of the republican national committee and of the executive committee of this body from Kentucky, and in 1916 he was western manager of the republican presidential campaign. Mr. Hert made his home at Hurstbourne Farms, Jefferson County, Kentucky.

A. T. Hert

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company contemplates the construction of a new passenger station, hotel, and Harvey house at Newton, Kan.

ATCHISON, TOPEKA & SANTA FE.—This company, which was noted in the *Railway Age* of June 10 as contemplating the construction of an addition to its power house at Albuquerque, N. M., to cost about $150,000, has authorized this work and will shortly accept bids.

ATCHISON, TOPEKA & SANTA FE.—This company has authorized and will shortly accept bids for the construction of a viaduct over Merlin street, Dallas, Tex., to cost approximately $107,000. The company will also soon accept bids for the construction of a new passenger and freight station at Longview, Tex., to cost about $28,000.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—This company, which was noted in the *Railway Age* of July 2 (page 42) as contemplating the construction of a new freight station at French Lick, Ind., closed bids on July 16 for the structure, which will be of brick construction with dimensions of 26 ft. by 52 ft., and will cost about $10,000.

CHICAGO, ROCK ISLAND & PACIFIC.—This company contemplates the construction of a freight house at Omaha, Nebr., and a new roundhouse at Memphis, Tenn.

CHICAGO, ROCK ISLAND & PACIFIC.—This company is accepting bids for the construction of a 50-ton frame coaling station at Pipestone, Minn., and a 100-ton frame coaling station at Livermore, Ia.

ILLINOIS CENTRAL.—This company is accepting bids for the construction of a one-story brick express building at Mattoon, Ill. The company is also accepting bids for the construction of a frame engine house, with dimensions of 60 ft. by 200 ft., at Herrin, Ill. The new facilities at Herrin will also include concrete cinder pits, a sanding plant, and water and sewer improvements. The Illinois Central is also accepting bids for the construction of a new frame passenger and freight station at Duck Hill, Miss.

MISSOURI PACIFIC.—This company is accepting bids for the construction of an employees' hospital at Grand and Shaw avenues, St. Louis, Mo. The building will be a seven-story structure with a two-story annex, and will be of concrete, brick and stone construction.

OKLAHOMA & ARKANSAS.—This company has applied to the Interstate Commerce Commission for certificate authorizing the construction of 20 miles of line from Salina, Okla., to Kansas, Okla.

STATE OF NEW YORK.—The superintendent of public works of New York announced on July 1 the opening of the bids which were submitted for the construction of the barge canal terminal building at Rochester, N. Y. All the bids were under the engineer's estimate, which was $233,310. At the same time bids for the construction of a bridge across the Hudson river from Troy, N. Y., to Cohoes were opened. Three of the six bids were lower than the estimate of $572,180. No contracts have been awarded as yet.

SUSQUEHANNA & WESTERN.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a branch from Bloomfield to Blain, Pa.

WABASH.—This road has purchased 65 acres of land west of Oakwood, at Detroit, Mich., as a site for railroad yards and general development of its property. It is reported that the average price of $4,000 an acre was paid. The strip is approximately 500 feet wide and a mile long, extending from Raupp road to Allen road and north of this railroad's present right-of-way. It is just north of the land bought in 1916 by the Pennsylvania-Detroit.

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—*Asks Authority to Acquire Control.*—This company has applied to the Interstate Commerce Commission for authority to acquire the control by lease of the California Southern and for the operation of its railroad and property.

CHESAPEAKE & OHIO.—*Asks Authority for Conveyance of Property of Subsidiary.*—This company has filed with the Interstate Commerce Commission an application for a certificate that public convenience and necessity require the operation by the Chesapeake company of the Chesapeake & Ohio Northern, which forms part of the connection between its lines and those of the Hocking Valley, and also for permission for the abandonment by the Northern company of the operation of its line coincident with the assumption of operation by the Chesapeake & Ohio; or, an order approving and authorizing the acquisition by the Chesapeake & Ohio of control of the Northern through conveyance to it of its rights, properties and franchises; or, authority to assume direct liability for the bonds of the Northern company. The application states that it is made under the provisions of section 1, paragraphs 18 to 22, and section 5, paragraph 2, either or both, and under section 20a of the Interstate Commerce Act, but not under section 5, paragraph 6, which provides for the consolidation into one corporation of properties under separate ownership. The Chesapeake & Ohio owns the stock and bonds of the Northern company.

See also article on another page of this issue, entitled "Chesapeake & Ohio Wants to Unify Properties."

CHICAGO UNION STATION COMPANY.—*Authorized to Issue Bonds*—The Interstate Commerce Commission has authorized the issue of $6,000,000 of first mortgage 6½ per cent bonds, the proceeds to be used in the construction of the union passenger station and facilities at Chicago, and has authorized the owning companies to guarantee the principal and interest of the bonds.

DENVER & RIO GRANDE.—*Stockholders Welcome I. C. C. Investigation.*—The decision of the Interstate Commerce Commission to investigate the financial operations, accounts and practices of the Western Pacific and Denver & Rio Grande Railroad companies, as noted in last week's issue of the *Railway Age*, page 111, is called a great victory for the stockholders of the Denver & Rio Grande by Arthur M. Wickwire and Daniel W. Blumenthal, counsel to the protective committee. In a joint statement they said:

> It is now certain that the entire history of the proceedings and financial operations of both the Denver & Rio Grande and Western Pacific companies will be laid bare and the country will learn how the wrecking of the Denver & Rio Grande was accomplished and the stockholders placed in their present plight.
>
> The committee, through its counsel, intends to participate in the hearings and investigation at Washington before the Interstate Commerce Commission. While this investigation will doubtless be of great benefit to the stockholders as well as to the whole country, the protective committee will relentlessly continue the legal proceedings already instituted, and others to be instituted for the purpose of vindicating the rights of the stockholders and compelling full restitution from those who are responsible.

DULUTH & NORTHERN MINNESOTA.—*Authorized to Abandon Line.*—The Interstate Commerce Commission has issued a certificate authorizing the abandonment of its entire line of railroad extending from Knife River to Cascade, Minn., 99.25 miles. The Minnesota commission had authorized the abandonment after April 1, 1921, but the district court had reversed the order on the ground that the commission had exceeded its jurisdiction and the case was appealed to a higher court. The attorney general of Minnesota had objected to the jurisdiction of the Interstate Commerce Commission on the ground that the railroad is intrastate, but the commission expresses the opinion that it has jurisdiction. The company claimed that the road has not been and cannot be operated except at a loss. It was built by a lumber company to reach timber which has now been cut down to such an extent that the lumber operations were discontinued. The commission says that apparently certain elimination of most of its traffic in forest products will diminish its present insufficient revenues by at least 90 per cent.

FLORIDA & EAST COAST.—*Annual Report.*—The corporate income account for the year ended December 31, 1920, is given as follows:

	1920	1919
Operating revenues	$10,868,520	
Operating expenses	8,950,204	
Net operating revenues	$1,918,316	
Taxes	502,472	
Railway operating income	1,395,796	
Compensation from U. S. Government (January and February, 1920)	394,782	$2,408,171
Balance on guaranty	621,930	.....
Gross income	2,523,793	2,418,422
Interest on funded debt	592,333	1,790,000
Total deductions from gross income	1,136,084	2,014,265
Surplus	1,387,708	404,158

GREAT NORTHERN.—*Asks Authority to Abandon Line.*—This company has applied to the Interstate Commerce Commission for authority to abandon a branch line in Stevens County, Wash., 7.49 miles.

MISSOURI, KANSAS & TEXAS.—*Bondholders' Committee Opposes Reorganization Plan.*—The committee representing the second mortgage bonds claims that the reorganization plan discriminates in favor of liens junior to the second mortgage, and holders of that issue are asked to deposit their bonds in an effort to defeat or modify the plan under consideration. The reorganization plan of the company has not yet been published, but has been submitted to the committee representing the second mortgage bonds, which is headed by Edwin G. Merrill, president of the New York Life Insurance and Trust Company. The American committee representing these bonds already has on deposit about half the bonds outstanding in this country, or more than $6,000,000. The total issue is $20,000,000.

NEW ORLEANS, TEXAS & MEXICO.—*Authorized to Issue Equipment Notes.*—This company has been authorized by the Interstate Commerce Commission to issue $3,499,122.50 of conditional sale purchase notes for the acquisition of equipment through the National Railway Service Corporation, to guarantee a note for $926,000, to be given by the service corporation to the United States for a loan, and to issue and pledge bonds as collateral security.

NEW YORK CENTRAL.—*Asks Authority to Issue Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $4,425,000 of 4 per cent consolidated mortgage bonds from time to time to be exchanged for New York Central & Hudson River 3½ per cent bonds under the terms of the agreement of April 27, 1914, in connection with the consolidation of the Lake Shore.

NORFOLK SOUTHERN.—*Asks Authority to Abandon Line.*—This company has applied to the Interstate Commerce Commission for a certificate authorizing the abandonment of the Carthage & Pinehurst, 12.2 miles.

OKLAHOMA & ARKANSAS.—*Asks Authority to Issue Stock.*—This company has applied to the Interstate Commerce Commission for authority to issue $307,500 of stock for the construction of 20 miles of line from Salina to Kansas, Okla., and for the purchase of a locomotive.

UNION PACIFIC.—*Annual Report.*—A review of this company's annual report for 1920 appears on another page of this issue.

WHEELING & LAKE ERIE.—*Asks Authority to Issue Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $451,000 of 6 per cent refunding mortgage bonds to reimburse the treasury on account of expenditures for additions and betterments and to be pledged as collateral.

Guaranty Certificates Issued

The Interstate Commerce Commission has issued partial payment certificates on account of the six months' guaranty, as follows:

Buffalo, Rochester & Pittsburgh	$135,000
Chicago, St. Paul, Minneapolis & Omaha	115,000
Minneapolis Eastern	17,000
St. Joseph Belt	62,500
Trans-Mississippi Terminal	55,000

Railroad Administration Settlements

The United States Railroad Administration has made a final settlement with the West Side Belt for $1,080,000 and with the Pittsburgh & West Virginia for $720,000.

Railway Officers

Executive

J. C. Murray, traffic manager of the Missouri & North Arkansas, with headquarters at Harrison, Ark., has been elected receiver, with the same headquarters, succeeding C. A. Phelan, who has resigned.

Carl L. Gray, president of the Union Pacific, has been elected president of the Los Angeles & Salt Lake, in addition to his other duties. **H. M. Adams,** vice-president in charge of traffic of the Union Pacific, has also been elected vice-president.

Operating

G. R. Mabie has been appointed superintendent of the Louisville Railway & Navigation Company with headquarters at Shreveport, La., succeeding H. L. Graham, transferred, effective July 1.

A. L. Hayden, contract agent of the Southern Pacific with headquarters at San Francisco, having resigned, the position has been abolished and the duties assumed by Wm. M. Singer, contract attorney.

J. J. Sexton, trainmaster of the Northern Pacific with headquarters at Livingston, Mont., has been transferred to Seattle, Wash., in a similar capacity, succeeding J. F. Fitzsimmons, resigned. **R. T. Taylor,** trainmaster with headquarters at Forsyth, Mont., succeeds Mr. Sexton at Livingston. **W. D. Pearce,** supervisor of bridges and buildings with headquarters at Glendive, Mont., has been appointed trainmaster at Forsyth, succeeding Mr. Taylor. These changes were effective June 15.

W. L. Barnes having resigned as executive manager of the Car Service Division of the American Railway Association, with office at Washington, D. C., to return to his position of general superintendent of transportation of the Chicago, Burlington & Quincy, with headquarters at Chicago, the position of executive manager has been abolished, effective as of August 1, and **M. J. Gormley,** director of the transportation division of the American Petroleum Institute, has been appointed chairman of the Car Service Division, reporting to the president of the American Railway Association. **C. A. Buch,** who has been assistant to Mr. Barnes, has been appointed secretary of the Car Service Division. A photograph and sketch of Mr. Barnes were published in the *Railway Age* of October 8, 1920 (page 637), and a photograph and sketch of Mr. Gormley were published in the issue of February 27, 1920 (page 647).

Traffic

W. W. Baker has been appointed industrial survey agent of the Baltimore & Ohio with headquarters at Baltimore, effective July 1.

W. W. Blakely has been appointed general freight agent of the Sharpsville, with headquarters at Pittsburgh, Pa., succeeding O. S. Lewis. Mr. Blakely will also serve as general freight agent of the Baltimore & Ohio, which company controls the Sharpsville.

W. R. McFarland, assistant general passenger agent of the Pennsylvania, with headquarters at Chicago, has been appointed general passenger agent of the Chicago Great Western, with the same headquarters, succeeding A. C. Irons, whose resignation was announced in the *Railway Age* of July 16 (page 144).

A. S. Gimble, general agent of the Gulf Coast Lines, with headquarters at Brownsville, Tex., has been appointed general agent, with headquarters at Monterey, Mex., in addi-

tion to his other duties. **L. R. Jones** has been appointed general agent, with headquarters at Mexico City, Mex. The appointments were effective July 11.

Golder Shumate, whose appointment as general freight traffic manager of the Baltimore & Ohio was announced in the *Railway Age* of July 9 (page 94), was born February 1, 1877. He began railway work in July, 1897, as a clerk in the general freight office of the Baltimore & Ohio at Washington, D. C., resigning from that position in October of the following year. He returned to the service of the Baltimore & Ohio in April, 1899, and the following September became a correspondent in the general freight department. In 1903 he became a rate clerk; two years later he was promoted to chief rate clerk, and, in April, 1912, to chief clerk in the general freight department at Baltimore, Md. On May 1, 1916, he was promoted to division freight agent at Youngstown, O., and the following December was transferred in a similar capacity to Baltimore. In March, 1917, he was promoted to assistant general freight agent and in November of the same year to general freight agent. In January, 1920, he was appointed acting freight traffic manager of the Baltimore & Ohio under the Railroad Administration. On the return of the roads to their owners he was appointed freight traffic manager with headquarters at Baltimore, which position he was holding at the time of his recent promotion.

Golder Shumate

O. S. Lewis, whose appointment as freight traffic manager of the Baltimore & Ohio, with headquarters at Baltimore, was announced in the *Railway Age* of July 9 (page 94), was born on March 8, 1873, at Lawrenceburg, Ind. He was educated in the public and high schools and began railroad work as a clerk in the accounting department of the Kentucky Central (now a part of the Louisville & Nashville) at Covington, Ky. From January, 1892, to the following November he was in the accounting department of the Chesapeake & Ohio at Richmond, Va., and in the office of the agent of the same road at Cincinnati, O. Then until 1896 he was in the accounting department of the Ohio & Mississippi (now a part of the Baltimore & Ohio). He next served, successively until 1906, as agent of the Baltimore & Ohio Southwestern at Lawrenceburg, Ind., and as chief clerk to the division freight agent at Vincennes, Ind. From 1906 to 1912 he was in the general freight office of the same road at Cincinnati and then, for a year, he served as division freight agent of the Cincinnati, Hamilton & Dayton, at Dayton, Ohio. He then went to the Baltimore & Ohio Southwestern at Cincinnati in the same capacity and, in 1915, was appointed assistant general freight agent of the Baltimore & Ohio Southwestern and the Cincinnati, Hamilton & Dayton. The following year he was promoted to general freight agent of the Baltimore & Ohio.

O. S. Lewis

G. M. Schleyer has been appointed executive general agent of the St. Louis-San Francisco with headquarters at Birmingham, Ala. Mr. Schleyer will report directly to the president except on rate matters when he will report to the vice-president in charge of traffic. His jurisdiction will include Birmingham and the coal mines in the immediate vicinity of that city.

Mechanical

J. I. Mailer, master mechanic of the Fort Smith & Western with headquarters at Fort Smith, Ark., has been appointed superintendent of motive power with the same headquarters, effective July 1. The office of master mechanic has been abolished.

Engineering, Maintenance of Way and Signaling

C. M. Staples, assistant to the corporate engineer of the Southern Pacific, with headquarters at San Francisco, Cal., has been appointed division engineer of the Houston division, with headquarters at San Antonio, Tex., succeeding **R. W. Meek,** who has been assigned to other duties. These changes were effective July 15.

H. M. Righter has been appointed division engineer on the Erie with headquarters at Susquehanna, Pa., succeeding **Charles M. Lewis,** transferred to Jersey City, N. J. Mr. Lewis takes over a part of the territory formerly under the jurisdiction of **S. J. Malloy,** division engineer with headquarters at Jersey City. In company with the above changes, the headquarters of **J. C. Patterson,** regional engineer, has been changed from New York City to Jersey City.

Purchasing and Stores

G. H. Pinion, assistant purchasing agent of the Texas & Pacific, has been appointed general storekeeper with headquarters at Marshall, Texas, succeeding A. D. Walther, resigned to accept service in another department. The position of assistant purchasing agent has been abolished.

Obituary

William A. Henderson, formerly general solicitor of the Southern, died at Washington, D. C., on July 16.

James Hughes, chief horticulturist of the Denver & Rio Grande with headquarters at Denver, was drowned in the Columbia river in Washington on July 19.

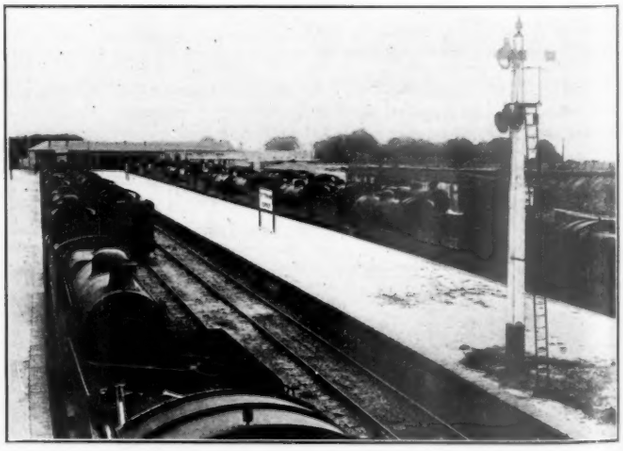


Photo by Keystone.

Idle Locomotives—Built in England for War Service in France—Too Heavy for Service in England